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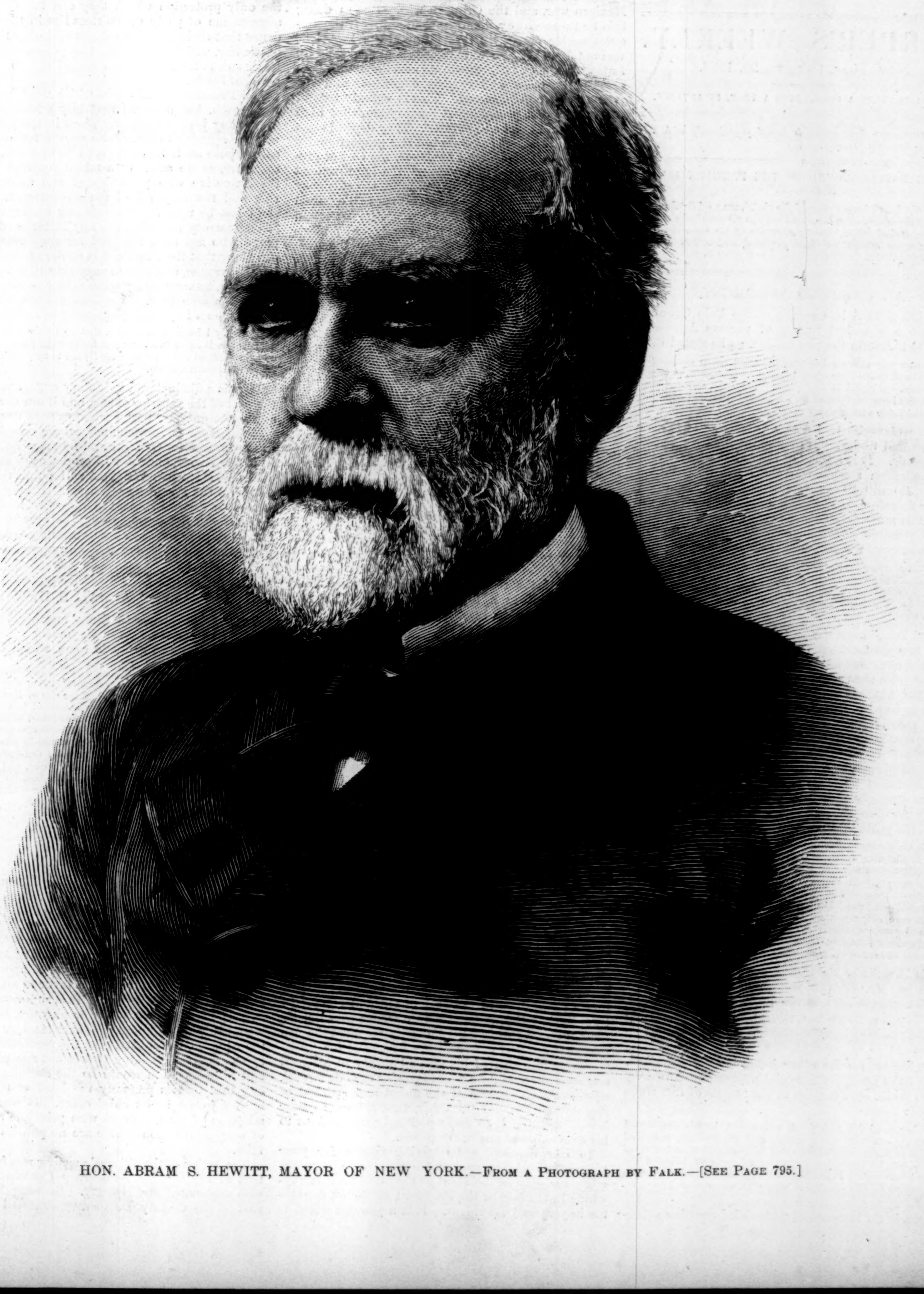

HON. ABRAM S. HEWITT, MAYOR OF NEW YORK.—From a Photograph by Falk.—[See Page 795.]

NOW IS THE TIME TO SUBSCRIBE.

HARPER'S YOUNG PEOPLE.

AN ILLUSTRATED WEEKLY FOR BOYS AND GIRLS.

VOLUME X. WILL BEGIN WITH THE ISSUE OF NOVEMBER 6, 1888.

The number for October 16th opens with a story entitled "Shy Little Dorothy Wentworth," by JOHN R. CORYELL. *It is accompanied by a front-page engraving.* EDWARD IRENÆUS STEVENSON *also contributes a short story to this number.*

The principal illustration is a double-page engraving entitled

"KEPT IN,"

FROM THE PAINTING BY TRUPHÈME IN THE PARIS SALON.

The second part of THEODORE CHILD'S *"Boys and Girls from Old Florence" has three engravings after celebrated works.*

Other contents of this number are "The Persian Army and the Bicycle," by THOMAS STEVENS; *a poem by* FRANK DEMPSTER SHERMAN; *and the thirteenth chapter of "Uncle Peter's Trust."*

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HARPER'S WEEKLY.

NEW YORK, OCTOBER 20, 1888.

TERMS: 10 CENTS A COPY.—$4 00 A YEAR, IN ADVANCE.

An ILLUSTRATED SUPPLEMENT *is issued gratuitously with this number of* HARPER'S WEEKLY.

"THE BATTLE-GROUND OF THE PRESIDENTIAL ELECTION."

To supply the continuous demand for the WEEKLY *of October 6th, containing the colored maps showing by States the political complexion of the United States, and by Counties of the seven doubtful States, an extra edition has been prepared, and orders will be promptly filled.*

AN UNSOUND ARGUMENT.

MR. BLAINE'S late speech at the Polo Grounds was a historical review of various American tariffs, to maintain the proposition, as he stated it,

> "that the country under a low tariff, inviting sharp competition and large importation from abroad, has never prospered, but every such attempt has ended in financial and industrial disaster, prostrating every interest, most of all the agricultural, and operating without exception with peculiar severity upon the wage-earners."

This is a favorite and easy argument. It takes a situation and undertakes to account for it by one of its elements. It is a form of the old English saying that Tenterden steeple was the cause of Goodwin Sands. It omits all other elements and explanations, and is therefore practically a suppression of the truth. In more detail Mr. BLAINE quoted Mr. BUCHANAN'S message of 1857 describing the disastrous consequences of the financial panic of that year:

> "'With unsurpassed plenty in all the elements of national wealth, our manufacturers have suspended, our public works are retarded, our private enterprises of different kinds are abandoned, and thousands of useful laborers are thrown out of employment and reduced to want.'

"And that," says Mr. BLAINE, "was the downfall of the famous tariff of 1846." That this, however, is not the obvious and necessary conclusion might be inferred from the remark of Senator ALLISON in 1870—and Mr. ALLISON is quite as thorough a student of the subject as Mr. BLAINE:

> "The tariff of 1846, although confessedly and professedly a tariff for revenue, was, so far as regards all the great interests of the country, as perfect a tariff as any that we have ever had."

But the situation described by President BUCHANAN, and attributed by Mr. BLAINE to the low tariff of 1846, is precisely that in England described by NOBLE, in his *Fiscal Legislation of Great Britain*, as due to the protective policy:

> "It is utterly impossible to convey by mere statistics of our exports any adequate picture of the condition of the nation when Sir ROBERT PEEL took office in 1841. Every interest in the country was alike depressed: in the manufacturing districts mills and workshops were closed and property depreciated in value; in the seaports shipping was laid up useless in the harbor; agricultural laborers were eking out a miserable existence upon starvation wages and parochial relief; the revenue was insufficient to meet the national expenditure; the country was brought to the verge of national and universal bankruptcy."

This is quite as startling a picture as the one borrowed by Mr. BLAINE from President BUCHANAN. But Mr. BLAINE says further:

> "At no time in our country's history has the United States ever recovered from the financial depression caused by a low tariff until a protective tariff was enacted to take its place."

Mr. NOBLE, on the other hand, having described, as we have seen, the financial depression caused by a high tariff, says further of the results of free-trade in 1865:

> "It has rendered agriculture prosperous, largely augmented rent, vastly extended manufactures and employment, increased the wage of labor, and while securing the collection of an increased revenue, has, by improving the value of property, lessened the burden of taxation. It has been shown also that each successive development of this beneficent legislation has extended these results."

Here is an instance of financial depression attributed to protection, and remedied, not by a protective tariff, but by what Mr. BLAINE describes as free-trade. The fact mentioned by NOBLE is not a solitary instance. CORNELIUS DE WITT, speaking of the great prosperity of his country when protection was the general rule in the rest of Europe, is cited as saying that Holland

> "possessed this wealth because its trade and all exchanges were left unfettered, unimpeded, unlegislated upon; and by this free-trade the Netherlands became both the most peopled and the richest country on the face of the earth, and loans could be effected there for a lower interest than anywhere else."

These absolutely contradictory views of able and intelligent men show the folly of such generalizations as those of Mr. BLAINE in his New York speech, or indeed of any attempt to explain a complex national condition by a single cause. In his history Mr. BLAINE treats the same condition much more philosophically and reasonably. Unable to deny the general and prolonged prosperity of the country under the tariff of 1856, which Mr. ALLISON regards as so perfect a tariff, Mr. BLAINE proceeds to explain it by other reasons, such as the discovery of gold, the Mexican war, and the Crimean war. But in doing this he throws away his own argument. If the unquestionable prosperity that followed the low tariff was not due to the tariff, neither is similar prosperity following a high tariff due to its exactions. In both cases many other and various conditions and elements must be considered. This is equally true of the other great protectionist assumption, that high wages depend upon a high tariff. They depend upon other conditions. Wages do not rise proportionally with duties. The demand for labor, the cost of production, the progress of invention, the improvement of machinery, the accessibility of land, the efficiency and intelligence of the laborer—these are all cardinal elements in the question of wages. High protection as a means of raising wages is the pretext of protected employers, who obtain protection against the products of pauper labor and then import the pauper labor. We have heard moving speeches upon the stump from manufacturers who pleaded for American industry while seven-tenths of their employés were cheap foreign laborers. Mr. BLAINE shows that general prosperity may attend a low tariff. But he says that it is despite the low tariff. He seems, however, not to see that while general prosperity may attend a high tariff, it is equally despite the high tariff. Mr. WEBSTER objected to a high tariff. "I think," he said, "freedom of trade to be the general principle, and restriction the exception." He denied the propriety of calling a high protective tariff like that of 1824 an "American policy." He said that the proposition was an invitation "to depart from our accustomed course," and "to adopt the policy of the most distinguished foreign states." He said in 1824:

> "There is a country not undistinguished among the nations, in which the progress of manufactures has been far more rapid than in any other, and yet unaided by prohibitions or unnatural restrictions. That country, the happiest that the sun shines on, is our own."

He found the secret of American greatness and prosperity not in a high protective tariff, but in American character, intelligence, and ability, fostered by freedom.

POLITICAL CONTRIBUTIONS.

A KANSAS correspondent, alluding to our recent remark in regard to the protection of office-holders against political assessments by the law of 1883, asks if we will explain "how these statutes and rules are going to protect the employés when the Executive Department of the government utterly refuses to execute or even attempt to execute them." The law unquestionably is designed to protect employés, as our correspondent will find if he will refer to it. But if the law be violated by those whose duty it is to enforce it, there is the usual legal remedy. If, as our correspondent asserts, high officers of the government have affixed their names to circulars calling on the subordinates to contribute, they have violated the law which provides, under penalty of fine and imprisonment, that "no public officer.... shall directly or indirectly solicit or receive, or be in any manner concerned in soliciting or receiving, any.... contribution for any political purpose whatever from any officer, clerk, or employé of the United States." If he knows such violation to have taken place, he has only to submit his evidence to the proper prosecuting authorities, as was done in the case of General CURTIS in New York. But as he evidently writes as a Republican under a strong partisan feeling against the Administration, and sneers at the President for "contributing one-fifth of his annual salary to his own election," he would do well to ponder the late remark of Senator HOAR, one of the ablest and strictest of Republican leaders: "I think that a public officer has as much right to make political contributions to his own cause as any other person."

In our opinion, when giving money for your "cause" is giving money for your own election, whatever may be the right or the honest intention—which in the case of the President we do not doubt—the impropriety is evident. It is a practice which is sure to lead to monstrous abuse. In the case of judges it is universally condemned as in the highest degree indecorous, for under the present system of making nominations it encourages practical bids for the judicial office. The necessary expenses of an election should be paid from the public treasury. But there are other perfectly legitimate expenses, such as those of meetings and of the circulation of documents, which are naturally and properly paid by citizens who favor this or that policy. But candidates ought not to contribute, because of the inevitable and dangerous abuses which follow such gifts, and of which our political history is full. This fact is recognized in the law which forbids any person in the service of the United States to pay any political contribution to any other person in that service. But he is free to give to any one who is not in the service. While, however, appointing officers are selected for partisan reasons, their subordinates are not free agents in election contributions, and should therefore be protected from all partisan solicitations addressed to them as a class. This is accomplished by law so far as the public service is concerned. But the only protection which they can have from the assessments of party committees lies in their confidence that their superior officers will obey the spirit of the law, which declares that no person in the public service is for that reason bound to contribute to political funds.

The President, by his rule which went into effect last March, has declared that any officer who dismisses any person from any place in the public service for refusing to contribute money for any political purpose shall be discharged from office. Here, therefore, as we said, is "a moral contract between the Executive who promulgated and approved the rule and the employé of the government, that he shall not be removed for refusing such payment." If our correspondent knows any instance of an employé who has been removed for such refusal, and can show that the President is aware of the removal for that reason, and after reasonable time has taken no action, he may justly accuse the President of violating his own rule. The Postmaster-General has written to an inquiring postmaster as follows:

> "In reply I have to advise you that no official under this Administration is liable to assessment for political purposes, nor will he be prejudiced in his position for failure to respond to demands for political contributions."

Here is a distinct and voluntary engagement upon the part of the superior officer, and if our correspondent knows any postmaster who has been dismissed or prejudiced for not responding, whose case is known to the Postmaster-General and he takes no notice of it, if our correspondent will send us the conclusive evidence, HARPER'S WEEKLY will publish it to the shame of the Postmaster-General. It may be of interest to our correspondent to know that while "Hubbellism" has not disappeared, it is very much more restricted and much more universally condemned by public opinion now than under any previous Administration.

FOR MAYOR, ABRAM S. HEWITT.

THE call for the great citizens' meeting which nominated Mr. HEWITT for the Mayoralty states clearly and admirably the grounds upon which he is supported:

> "The fearless, incorruptible, and conspicuously able administration of ABRAM S. HEWITT as Mayor of the city of New York since January 1, 1887, his absolute independence of factional control, his open announcement that the city government should not be in the hands of any political machine for the distribution of patronage, his large capacity and experience in public affairs, and his sterling integrity of character incontestably demonstrate his peculiar fitness for the office of Mayor of our city, and demand his continuance therein for another term in the best interests of the municipality."

In pursuance of this call, a meeting of citizens of the highest character and intelligence, addressed by orators who spoke in the same strain, nominated Mr. HEWITT by acclamation, and he has accepted the nomination. The call, the meeting, and the result illustrate the best aspect of popular institutions, and recall the days when the city of New York summoned its best citizens to serve it. Mr. JAMES C. CARTER, in a forcible and unanswerable speech, stated the character and significance of the movement in saying that there are no politics in municipal affairs, and General BARLOW emphasized a very important truth in pointing out that it is not a favor to a man to call him into the public service. He is summoned to such duty not for his own profit or pleasure, but for the welfare of the community. Mayor HEWITT has shown the courage, the ability, and the resolution to serve this municipal community without regard to party, and his re-election would be the declaration of the city that that is precisely the kind of man that it wishes to see in its chief office. It would be the adoption of Mr. CARTER'S wise principle as the rule of municipal action—there are no politics in city affairs.

The action of the citizens' meeting was followed by that of the County Democracy Convention, which also nominated Mr. HEWITT. In accepting he said that if the County Democracy expected patronage from him they would be mistaken. Tammany Hall has nominated Sheriff Grant, of whom Mr. Hewitt remarks that however excellent a gentleman, "he represents the spoils principle and nothing else." These two nominations left a simple alternative for the voters between one of the best Mayors that the city has ever had and a mere instrument of Tammany Hall. There could be no good reason for interposing a third candidate solely as the representative of a political party. For the Republicans to do this was to do precisely what they charge upon the Prohibitionists, namely, to aid the Democrats at the cost of good government. They have nominated Mr. Joel B. Erhardt, who, however excellent a man, is in this contest, like Sheriff Grant, merely the candidate of a party machine, whose nomination is direct aid and comfort to Tammany Hall. If the Mayoralty election is to be regarded as a political contest, it will be always in the power of the Democratic machine to select the Mayor. The only chance for the Republicans would lie in a possible Democratic quarrel, and even if they could slip in a Mayor for a year it would be of no permanent service to the city. The candidacy of Mr. Hewitt offers every intelligent Republican and Democrat precisely what is most to be desired in a Mayor, great knowledge and experience, with the thorough honesty and independence which are essential to the proper conduct of municipal concerns.

His election would be a great public benefit, not only because it would secure the man who is needed, but because it would show that a vigorous and united effort of good men of all parties can overcome the party machines. The character of many nominations which are supported ruefully by the party because they are "regular" is due to the conviction that it is hopeless to contend with the machine. But there is constant evidence that it is not hopeless. The State elections of 1879 and of 1882 are illustrations of the effectiveness of independent action in the interest of the community and not of a party. In the same way the citizens' movement for Mr. Hewitt is a sign of that vigorous and wholesome public spirit which may be trusted to withstand the effort to maintain party organization at the expense of the common welfare. Since the uprising of the city against Tweed there has been nothing more encouraging than the spontaneous and united popular movement for the re-election of Mayor Hewitt.

MR. SCHURZ'S LETTER.

In the campaign of 1884 there was no abler or more efficient advocate of the election of Mr. Cleveland than Carl Schurz. His speech in Brooklyn at the opening of the canvass was the clearest, completest, and most unanswerable statement of the reasons of the independent movement against Mr. Blaine. Like all Mr. Schurz's speeches and papers, it was calm and temperate in tone, but most forcible and incisive in argument. Among the prominent supporters of Mr. Cleveland in that year, however, no one has been more disappointed by the President's course in regard to reform in the civil service than Mr. Schurz. This disappointment he has not sought to conceal, and his necessary absence and detention in Europe, together with his refusal to be interviewed upon American politics, has led to the statement that he was opposed to the President's re-election. A letter from him, dated September 15th at Kiel, and addressed to an independent of '84 in Wisconsin, whose name is not given, but who is now a supporter of General Harrison, states Mr. Schurz's view of the situation. He supports Mr. Cleveland for the best reasons, and will vote for him if he should be able to return in time.

Mr. Schurz's letter is a lucid and comprehensive summary of the real issue of the election. He begins by expressing his regret and disappointment at the President's departure from his original programme, and shows, as we think justly, the insufficiency of the explanations offered for it. But while he admits the force of the plea that such shortcomings should not be permitted to pass with impunity, he thinks that reformers who would punish the President by defeat, if they should succeed would punish the country still more. The course of the campaign shows, in his judgment, that Republican success means the ascendency of Mr. Blaine in the administration, and after 1884 Mr. Schurz is not frightened by the cry of disaster as the consequence of the President's re-election. The President proposes nothing which the Republican party has not proposed, while the Republican platform sacrifices the pledges of better days. The fundamental Republican assertion of this year, that the free importation of raw material would destroy the protective system, and with it our industries, would make Henry Clay, the great champion of protection, turn in his grave. Mr. Schurz with admirable ability demonstrates that the larger the market for American products, the more prosperous will be American industry, that wages do not depend upon a high tariff, and that the free entry of raw materials has never reduced wages.

No part of the letter is more worthy of careful reflection than that in which Mr. Schurz points out that as a high tariff tends to destroy foreign competition at the cost of the American consumer, so "Trusts" destroy domestic competition, and leave the American consumer at the mercy of a doubly fortified monopoly. The inevitable consequence in a free and public-spirited country like ours will be a sudden and complete and disastrous overthrow of the whole protective system. The Trust is but the younger brother of the Tariff. They are products of the same policy, and its approval in the pending election would be, for the reasons stated, a dangerous menace to the whole scheme of protected industries. The cardinal question of the election therefore is whether tariff reform shall come in the temperate and prudent way proposed by the President or in the shape of an angry reaction. This alone would be a conclusive argument for the support of Mr. Cleveland. But there are others, notwithstanding all disappointment with his course in administrative reform. His Presidency has relieved the country of the feeling that half of the whole body of citizens are disloyal, and that the government could not pass from one party to another without peril. The ability of his administration, its fidelity to the public interests, and its wholesome conservative spirit have greatly won the confidence of the country, while his message has identified his candidacy with an economic policy which promises to adjust dangerous differences, to enlarge the area of industrial activity, and to secure a steady development of the general prosperity. For such reasons Mr. Schurz does not hesitate to declare for Mr. Cleveland, and the campaign will not see a more cogent and conclusive, a juster, abler, or more truly American plea in scope and spirit, than his letter.

WOOL.

We recently inadvertently misstated the figures of the tariff tax upon raw wool. Under the act of March 3, 1883, unwashed clothing wools costing 30 cents or less per pound pay 10 cents per pound; costing more than 30 cents, 12 cents per pound. If washed, the duty is double. Combing wools at 30 cents or less pay 10 cents, and if more than 30 cents, 12 cents per pound. Carpet and similar wools costing 12 cents or less per pound, 2½ cents, and if costing more than 12 cents, 5 cents per pound. Scoured of all classes pays three times the duty on unwashed; and woollen rags, shoddy, etc., etc., pay 10 cents per pound.

This is a very high duty. Mr. J. S. Moore, one of the most accomplished tariff experts, estimates the duty on raw clothing wool during the year 1886–7 at $2,395,536—a percentage in *ad valorem* of 55.20. Mr. Spofford, Librarian of Congress, calculates from official figures the value of woollen imports for 1886 at $40,536,509, and the duties at $27,274,527—a percentage of 67.29. Deducting the imports under the head of rags, shoddy, and waste, the average duty on imported woollen fabrics was 70 per cent. The highest duty, nearly 92 per cent., was paid on the cheaper grades of woollen cloth.

The tariff on the finer wools that cannot be grown in this country is so high that our home manufacturers cannot compete with the foreign goods. There are three kinds of wool—the superfine, or Silesian, the coarse carpet wool, and the combing wool. This country produces the last only. But the first and the second are essential to the manufacture of good cloth, and a duty upon them tends consequently to prohibit the manufacture. It protects no one, and it encourages no home industry. It merely enhances the cost of production. It would be hard, therefore, upon the theory of protection, to justify the increased duty of one cent per pound on carpet wools costing over 12 cents per pound which the new Senate bill proposes. President Grant said what we believe is the opinion of Mr. Lynch and Mr. Bond, the two chief wool experts in the United States, and what many wool manufacturers have stated during the campaign:

> "The introduction free of duty of such wools as we do not produce would stimulate the manufacture of goods requiring the use of those we do produce, and therefore would be a benefit to home production."

Yet this duty on carpet wool is one of the protective duties which, rather than surrender, the Republican platform would repeal the tax on whiskey.

THE CHANGING POLITICAL SITUATION.

Simultaneously with the appearance of Mr. Schurz's letter, Hugh McCulloch, Secretary of the Treasury under Presidents Lincoln, Johnson, and Arthur, one of the most patriotic of men, and a master of financial and economical questions, announces his intention of voting for Mr. Cleveland. Mr. McCulloch is not a free-trader; he is an old Henry Clay Whig, and he still holds Clay's views. In the preface to his *Men and Measures of Half a Century*, a very valuable and interesting work just published by Scribner, Mr. McCulloch says:

> "With due respect for the opinions of protectionists, I cannot see how the country can continue to be highly prosperous, and peace and order can be maintained in the manufacturing districts, without the admission, free from duty, of the raw materials which are needed by our manufacturers, nor without a reduction of duties upon many articles which are in general use. The real danger which threatens the country, and especially the manufacturing interests, is not a reduction of duties to the revenue standard, but the necessity which may exist for so high duties for revenue purposes as will prevent free international exchanges."

The letter of Judge W. M. Dickson, of Ohio, resigning his membership in the Lincoln Club of Cincinnati, is another of the many significant signs of the political situation. There has been no stronger or more devoted Republican, but his letter shows how far the party has drifted from its principles. In a plain and simple and forcible way he states why an original Republican cannot vote for General Harrison as a representative candidate, however excellent his personal character may be. No personal or interested motive of any kind can be alleged for Judge Dickson's conclusions. He is not in public life; he is free from political ambition; he has no grudges to gratify. He is an intelligent, sagacious, and patriotic private citizen who cannot support a policy which, rather than surrender any protective tax, prefers "to make whiskey cheap, with the moral ruin which such cheapness implies; to sacrifice the $120,000,000 which the whiskey and tobacco taxes produce, with loss to no one and positive benefit to every one; and to put this vast sum on the food and raiment of the people." The decision of three such men as Mr. McCulloch, Mr. Schurz, and Mr. Dickson, all of them conspicuous illustrations of the Republicanism of Lincoln and the original Republicanism, shows how far the party has wandered from its old standards, and how it is losing the support of men who gave it its distinctive and lofty character. The sneer which greeted Mr. Seth Low's manly and reasonable statement of dissent from the new Republican dogma, that he was a Sunday-school politician, was a mere spirt of impotent rage which showed how deeply felt is the loss to the party of men of character and weight.

Mr. McCulloch, Mr. Schurz, Mr. Dickson, and Mr. Low are fitting representatives of the deep and wide-spread Republican protest against the later spirit, tendency, and policy of the Republican party. When such men support the President, when original abolitionists and prominent Republicans like Colonel Higginson in Massachusetts, run for Congress on a Democratic nomination, or like Colonel Codman advocate the election of a Democratic President, or like Frederick A. Benjamin, a Lincoln elector of 1864 in Connecticut, propose, for reasons admirably stated by him, to vote for Mr. Cleveland, because they differ from the Republican party upon the paramount question of the campaign, it is plain that the party has become the representative of other than its original principles and views, and practically a new party, although it retains the old name and organization. Its fundamental principles and its traditions belong to those who vote against its new policy as well as to those who vote for it. Upon its new policy it has no traditions, because many of its most eminent fathers and founders held and expressed opinions adverse to it, and the proclamation of that policy is really the manifesto of a new departure. The change in the political situation is best seen in the great number of original anti-slavery men, to whom the Democratic name was formerly synonymous with everything that was most repulsive in politics, but who in this campaign, without formally identifying themselves with the Democratic party, will vote for the Democratic President.

AN EXPLANATION.

The article on "Western Journalism" published in the October number of Harper's Magazine contained an expression of opinion on the part of its author respecting the St. Paul *Globe* which was uncalled-for and wholly foreign to the scope and purpose of the article. It was not the intention of the conductors of the Magazine to include in this article any criticism—least of all any harsh criticism—of journalistic methods. Owing to the expedition with which the article was forwarded to the press (the manuscript having been received at the last moment) and the perfect confidence reposed in the contributor, the criticism of the *Globe* escaped the editor's scrutiny. It is the first time in the history of the Magazine that any expression which could give offence to a contemporary publication has appeared in its pages. The publishers of the Magazine feel that it is due to themselves to do in this case what they would expect of the proprietors of the *Globe*, if a similar expression respecting one of their periodicals had inadvertently found a place in its columns. They desire, as publicly as possible, to disavow and repudiate the opinion expressed by their correspondent respecting the *Globe*, toward which they have none other than the most friendly sentiments.

PERSONAL.

When the corner-stone of the new Homœopathic College is laid in New York on the 20th inst., announcement will be made that a free hospital for the poor is to be established in connection with it. The Hon. Roswell P. Flower is the big-hearted citizen who provides the fund for this good work.

—In a recent letter Mrs. Cleveland writes: "I beg to thank you for the manifestation of your regard; but I ought, perhaps, to tell you that I'm never called Frankie, although some intimate friends sometimes call me Frank."

—"If the old martyrs were as jolly as we are, I don't pity them much," was what John G Whittier used to say in the old abolition days, when, amid persecutions, Garrison and other brave souls would talk of martyrdom.

—Does the stage give cash returns? Lotta has just spent $25,000 for bric-à-brac to ornament her Lake Hopatcong home.

—Sweden's King is said to spend from six to ten hours a day at authorship. He aims at fame as a historian.

—R. Gunner, who was once the favorite aide of Maximilian, is now running a newspaper stand in Dallas, Texas.

—John M. Ward, the New York base-ball short stop, is to make a tour of the world to spend in pleasure the fortune that he has accumulated on the Diamond.

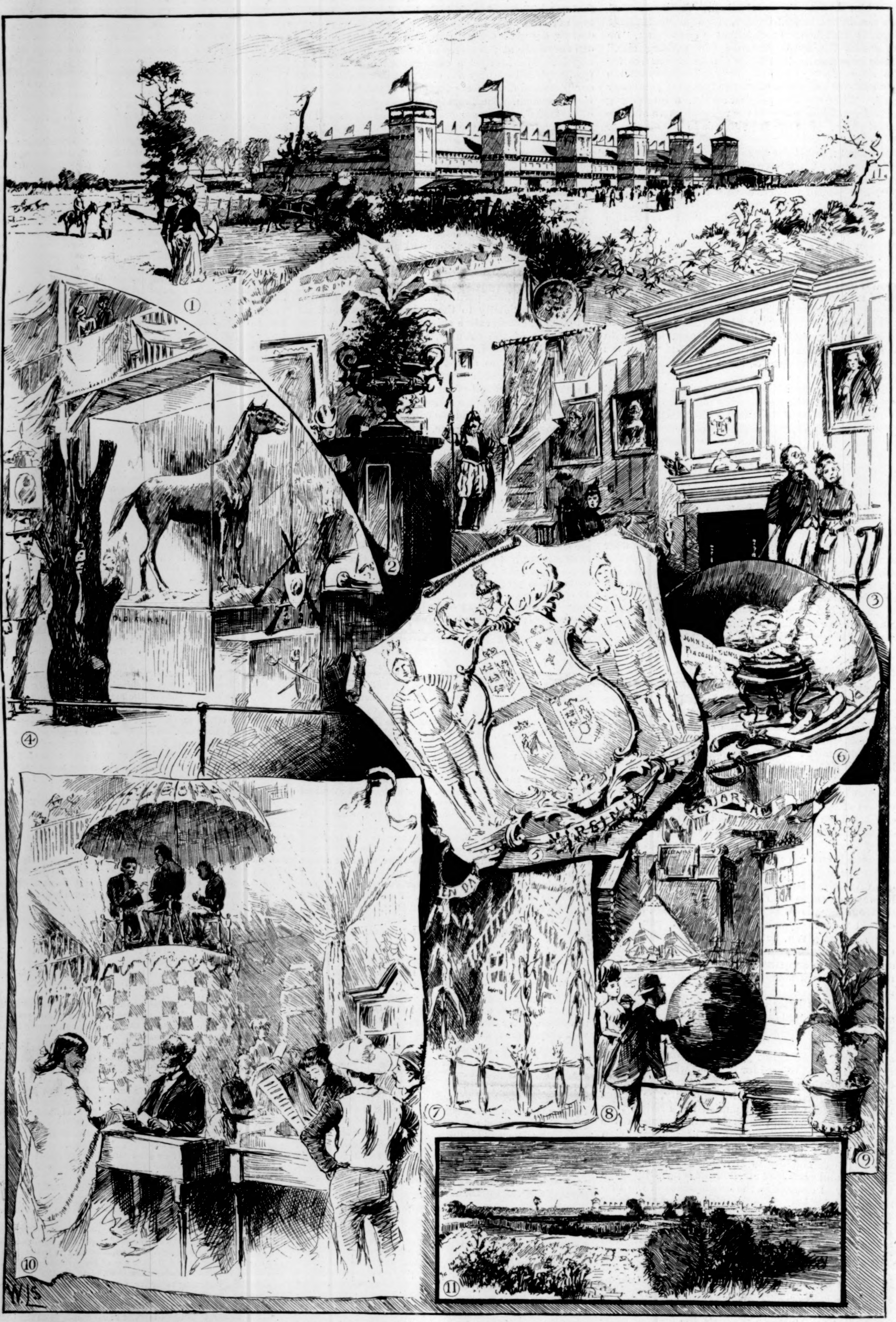
—Mr. and Mrs. Acton, with their six children, the eldest twelve and the youngest a year old in a perambulator, and two maids, have just finished a pleasure walk from London to Glasgow, five hundred miles. They make this journey every year.

—William Porter, a negro, who doubtless was the oldest man in America, died last week at Howland, Kentucky, aged one hundred and seventeen, having been born, according to well-authenticated evidence, before the Declaration of Independence. He was a slave till Lincoln's proclamation freed him.

—England is getting ready for a new expedition to Egypt and the Soudan, the disasters of the last invasion being now about glossed over by an accommodating forgetfulness.

—The Prince of Wales's favorite music comes from the banjo. He plays it himself.

—In last week's death list was the name of James L. Jackson, of Yonkers. Mr. Jackson was the pioneer in New York of successful iron architecture. Many of the best-known buildings in New York—including the Harpers' publishing house—had their iron architecture planned and executed by him.



THE GREAT INDUSTRIAL AND AGRICULTURAL EXPOSITION AT RICHMOND, VIRGINIA.—DRAWN BY W. L. SHEPPARD.—[SEE PAGE 799.]

1. Exterior of the Main Building. 2. A Glimpse of the Art Hall. 3. The Colonial or "Brandon" Room. 4. Stonewall Jackson's Horse, Tree split by Cannon-Shot from Fredericksburg, and other War Relics. 5. Colonial Coat of Arms of Virginia. 6. Colonial and Revolutionary Relics. 7. Cottage made of Cereals. 8. Objects made of Tobacco or Cigarettes. 9. The "Weed" in Blossom. 10. Making Cheroots. 11. Redoubt of Richmond Defences in front of Exposition Grounds.

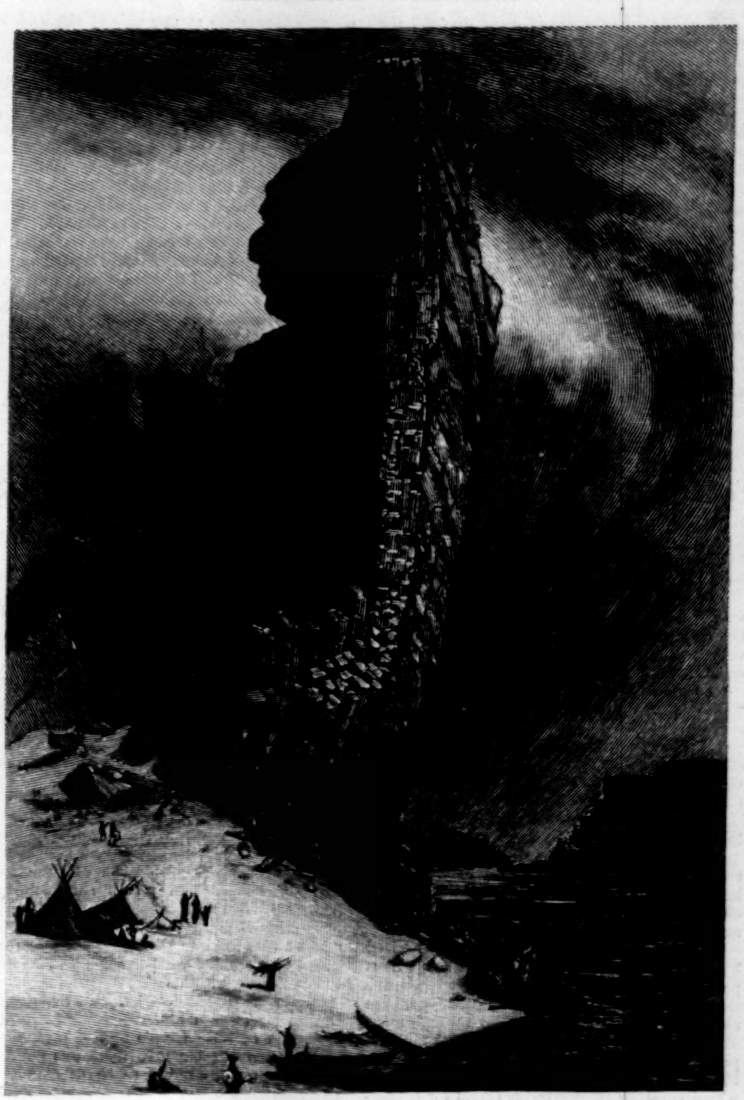
THE BASE-BALL SEASON.

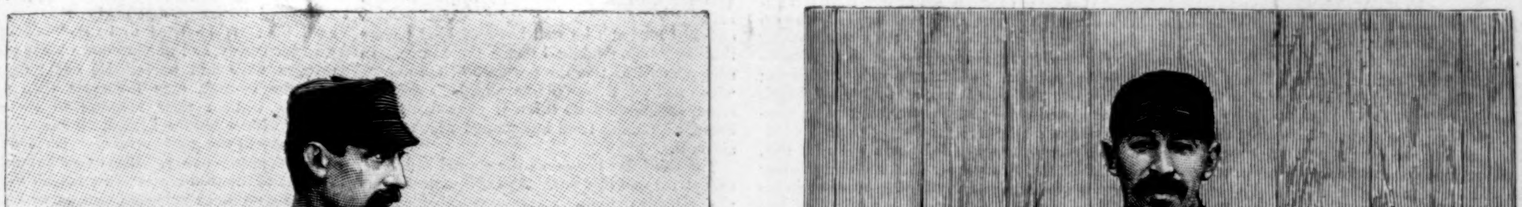
ONLY the rigors of winter apparently can avail to put an end to the long season of base-ball. As far as outward indications serve as a guide, the interest of the people in the game itself is as wide-spread and as well sustained as in the height of the season, and possibly, if the managers could have their way, the approach of a settled period of cold weather would be made extremely remote and indefinite. The weather, however, is not to be put off, and the season for the base-ball player and the base-ball enthusiast—for whom, by-the-way, no appropriate term of designation has yet been invented—has practically come to an end, the final game in the League series having been played on Saturday. The last lingering contests of the Association nines will be determined this week.

Considered in its various phases, the season just closing has been unusually successful. The promise given early in the year of excellent and exciting sport has been well fulfilled. Special series of games, as, for example, those between the New York nine and its chief rivals, the clubs of Chicago and Detroit, and the lively bout between the St. Louis and Brooklyn players, have awakened intense interest throughout the country. The telegraph, the bulletin, and the "base-ball extra" have become established as adjuncts of the game, and the exploits of the various clubs have become the daily food of the local historian. Minor organizations in the East, West, North, and South have served to cherish and to fan the popular flame to such a degree that base-ball as a game for the masses has become supreme master of the field of sports. If a general display of enthusiasm and devotion to sport is to be the test, base-ball has assuredly won the title and the honors which belong to the "national game." Notwithstanding the fact that high salaries are paid for the services of expert players—as much as $5000 in some instances being the salary for professional services covering a period of some four months—and that large bonuses have been paid for the right to acquire the services of players belonging to other clubs, the managers and the stockholders of the League and Association clubs have been able to make a handsome profit and to declare attractive dividends.

Throughout the season there has been more or less grumbling on the part of the players and the spectators over the work of the much-abused and the much-to-be-pitied umpire. The difficulty of pleasing both sides by a decision which is bound to give an advantage to but one side is obviously superhuman, and the umpire is essentially human. There is a prospect, more or less remote, that a dual system of umpires, say an umpire and a referee, as has been suggested, will afford the protection and the satisfaction which both the players and the spectators demand. Another strong point of contention is the relative superiority of the pitcher's skill over the batsman's ability. Year after year the advantages have been given to the pitcher and the restrictions to the batsman, with the natural consequence that lively and energetic batting has become a thing of the past, while the pitcher is master of the field. Lively batting means lively fielding, good running, very exciting episodes, increased scores, and general activity at all points of the game. Undoubtedly there will be some legislation on this point on the part of the League and the Association managers. The proposed extension of the foul lines, so as to admit of greater latitude in the matter of fair hits, has already met with the approval of a large number of managers and players throughout the country. This scheme also increases the fielders' chances, giving them more ground to cover, with less liability of accepting the chances offered them. Another plan seeks to set the pitcher back beyond his present limits. This tends to put a premium on the pitcher of speed, and is objectionable on that account. A third plan suggests a return to the old system of high and low balls. The variety of the schemes is in itself suggestive of the need of remedy. Base-ball is too democratic a game to admit of the monopoly which the pitcher has for so long a time been enjoying.

For New-Yorkers, at least, the League championship season in its results has left nothing to be desired. The pennant, emblem of many a hard-fought contest on the green diamond, has been won, and the proud title of "champions" has been made commensurate with the sobriquet "the Giants," which the New York nine has, for one season at least, made just and appropriate to itself. What more, indeed, could be desired? The victory is one of which "the Giants" may well be proud, for it has been achieved after an unusually exciting series of contests with the nines of Chicago and Detroit, in which have been displayed all the resources of skill and strategy, cleverness and agility, for the exhibition of which base-ball is so peculiarly adapted. The supremacy, moreover, was not attained at a bound, or by lucky advantages at any period of the season; on the other hand, the issue has been involved in conjecture and doubt from the beginning, and the players of the New York club, although they have held the first place since August, were only able to demonstrate their superiority by unfaltering excellence at the bat and in the field. The ultimate success depended in no slight measure, also, upon the harmonious movement of "the Giants," whose accuracy and precision in accomplishing the desired play became at the close of the season little short of remarkable. It was, in


THE "GREAT CHIEF" OF THE COLUMBIA RIVER.—FROM A PHOTOGRAPH.—[SEE PAGE 795.]



TIMOTHY J. KEEFE, PITCHER.

WILLIAM EWING, CATCHER.

THE WINNING BATTERY OF THE NEW YORK BASE-BALL TEAM.

short, the supremacy of highly organized and concentrated methods of play over a diffused and loose opposition.

The fight along the line has been no less stubborn, and first and second positions had been no sooner appropriated by the New York and Chicago nines than a desperate struggle for the third place was kept up between Detroit, Boston, and Philadelphia, to end only with the close of the season itself. The final encounters, too, of the Washington and the Indianapolis clubs resolved themselves into a succession of bewildering attempts to avoid the tail-end honors.

Interest in the contests of the Association clubs has been well maintained, but the foregone conclusion that the first place would fall for the fourth consecutive time to the remarkable players of St. Louis transferred general attention to the struggle for places. Local enthusiasm in these contests, fired to fever-heat by the marvellous display of base-ball proficiency which gave first place to the Brooklyn nine for a gloriously brief period, cooled considerably as the nominal leaders gave way to the phenomenal play of the St. Louis nine. The adherents of the Brooklyn nine, however, have found much to excite their enthusiasm in the thrilling battle for second place which their favorite nine is waging with the Athletic Club of Philadelphia. What the issue is to be, only the final record can show. Local pride would be stirred to unusual depths, certainly, if high positions in the great base-ball organizations of the country fall to the New York and Brooklyn clubs. The Cincinnati club will take fourth place, the nines representing Baltimore, Cleveland, Louisville, and Kansas City ending the season probably in the order named, and with defeats more numerous than victories.

But new fields and new contests are now to claim the attention of base-ball admirers throughout the country. "The Championship of the World" is the high-sounding and comprehensive title of the new sensation, and the supreme agents are the New York players, champions of the League, and the members of the St. Louis club, the leader of the Association. The scheme involves nothing more nor less than a test of the skill and proficiency of the two clubs in a series of eleven games, four to be played in this city, four in St. Louis, and one each in Brooklyn, Cincinnati, and Philadelphia. The first game was played at the Polo Grounds on Tuesday, October 16th. "Base-ball as it should be played" is certainly an interesting spectacle, and these contests bear excellent promise of furnishing the most exciting sport ever witnessed on base-ball fields. The chances of battle favor "the Giants," but any one acquainted with the phenomenal brilliancy and dash and the remarkable staying powers of the Western nine will not venture to prophesy an easy conquest. The home club possesses the strongest batters, and an almost invincible array of pitchers in Keefe, Welch, Crane, and Titcomb. That most useful accomplishment—fine base-running—is, however, possessed and practised in its rarest degree by the St. Louis men, and where "slugging" fails and fielding falters, this may prove a winning feature. We cannot but predict, after the earnest, steady, and energetic play of the New York nine, that the home club will prove victorious, and the hope is even stronger that the home players may make treble the supremacy justified by their popular name, and assured by the title of "Champions of the League."

FREDERICK EVANS.

THE MAN AND THE MOUSE.

THROUGH the streets of Genoa moved a band of five men. He in the midst had his arms bound fast behind him, and his head so muffled in cloths that no sound could escape. Outside the city the splendors of the full moon silvered the bay; the air was soft, and perfumed with the scent of late blossoms and the breath of the tideless sea; but these men threaded their way between high buildings where no ray of moonlight fell, and where the stagnant air hung heavily. Swiftly they mounted the hilly street, and when their mute prisoner stumbled they dragged him to his feet by chains fastened to his iron wristlets. As they advanced there appeared before them a blacker blot upon the darkness; here was an open gateway, and into it they turned, encountering a troop of soldiers, who came threateningly toward them. But the leader displayed a badge beneath his cloak, at sight of which the guards drew back. The new-comers pressed forward between high walls of stone, where rows of flaming torches shed an uncertain light, to a second gate, which denied them further passage. A whistle from the leader, and this unclosed, admitting them by a corridor to a bare and lofty chamber. Here sat a grave gray-bearded man dictating to two youths. The new-comers paused till he turned about; a dull sparkle lit his eye as it fell on the group.

"So you have him?" he said, as his look fastened upon the central figure, so enveloped in its wrappings that no feature could be discerned.

"Yes, Excellency," replied the leader, bending low. "He has led us a hard chase, but we have him. We took him as he was mounting the side of the galley."

"Has he said aught?"

"I judged it best to have no speech with him," answered the other, "but to leave him for your Excellency to deal with. Your Excellency should hear, though, that he caught sight of us ere we seized him, and as we laid hold on him a paper dropped from his hand into the sea, and was gone before we could even see properly what it was."

The old man frowned. "You have been careless servants," he ejaculated, and for a moment sat in silence. Then he spoke: "Remove the cloths from his head, but leave his arms bound. Wait without."

The cloths when stripped away exposed the head and face of a young man of thirty, with bold and swarthy features and eyes of flashing blackness. He gazed steadily at the man before him.

"Well, Ser Luigi, if that be the name you favor," cried the latter, "we have secured you at last. For a humble man," he continued, with a sneer, "you have given much trouble to your betters. And now you are in our hands, do you care to earn our farther enmity? From more sides than one there have reached us rumors of the conspiracy. Ser Luigi, whatever power your friends may hold, they cannot reach you here. You have no hope save in *us*. To plot against our Admiral, the well-spring of our glory, deserves the blackest death. Therefore reflect well upon his mercy and his majesty, when he offers you freedom, full forgiveness for all past offences, even the enduring friendship of the Dorias, for one small favor. Give me the names of your fellows in this evil league, and you shall find how nobly Doria can reward those who have rendered him a service."

The speaker ceased. The other, looking at him with face devoid of all expression, answered: "I am a simple merchant, come to Genoa to buy goods which I hope to sell again at a profit in Rome. You will find them in the galley whence I was torn. I know nothing of such a conspiracy as you speak of."

The eyes of his questioner gleamed. "Beware!" he cried. "I tell you we *know* who you are, and what brings you here. Lying will be vain. Will you tell me the names of your fellows or not?"

"I have no fellows," answered the young man. "I cannot tell you that which I know not myself."

"We have no time to throw away," cried the other, rising and ringing a bell which stood upon the table before him; "Mercy is wasted on obstinacy. The rack shall make you speak."

"Can the rack teach me that which I do not know?" retorted the prisoner.

The older man, without replying, signalled to two tall and powerful men clad in black, who had silently entered the hall. "Take the prisoner," he said, "and bind him on the rack. Let me be summoned when all is in readiness."

The young man, who did not blench, was seized by the executioners, and hurried through devious passages to the great torture-chamber, where the silence seemed still to preserve an echo of all the shrieks and groans that had rung through those dim arches. Stripped and laid on the rack, he preserved the same composure, and seemed even indifferent to the advent of the two noble lords whose entrance must give the signal for his sufferings to begin. One was the same to whose examination he had already been subjected in the audience hall; the other—Doria himself—a tall, white-haired old man, gazed at him eagerly, as if to extract from his face the information which his lips refused to give. But there was nothing to be gained by inquisitive glances. Luigi's countenance remained as inexpressive as his words; and when the attendants, at the signal, began their torments, they were powerless to drag treachery from his lips.

The torture was applied again the next day, and the next, and yet again. As the prisoner became weaker, his self-control gave way; in his pain he sobbed and moaned and shrieked, but he never spoke. Each day he smiled anew before they laid him on the rack, and repeated his old formula: "How can the torture make me reveal what I am ignorant of? I know of no conspiracy, signori; I have no fellows."

"There are other ways than the rack to make you reveal your evil knowledge," responded the Prince on one occasion, when, pale, exhausted, almost dying, the miserable sufferer was carried past him. But in an instant the white face lighted up.

"I have no knowledge, signori," he panted, and smiled again.

The next morning Luigi awaited in vain the appearance of the two executioners. Instead, late in the day his door was unlocked by a cripple, who, standing on the threshold, beckoned him to come. Bruised and faint, Luigi staggered to his feet and followed the guide, who led him down a succession of short stairways to a narrow door. Two men at arms followed close behind, but the prisoner, had he been alone with his companion, was too weak to think of resistance or escape. The guide threw the door open with a clang. The dungeon which they entered was small, and dimly lighted from an opening high above their heads. It was evident that they stood far below the level of the earth. The guide once more beckoned Luigi and led him to the corner of the cell, where on a rough stone lay a tablet, a bronze cup filled with black liquid, and a feather trimmed for writing. The cripple's voice, hoarse and cracked, broke the silence.

"When you weary of solitude," he said, "or wish for the sunshine, or perchance desire nothing more than a mouthful of fruit, or a swallow of fresh spring-water, you have but to write the names our master asked upon this tablet, and place it in the shaft. You will receive your freedom and all that the heart of man can desire. otherwise your imprisonment is life-long."

In a moment more the prisoner heard the jar of the closing door, and the heavy bolts were drawn. Footsteps resounded through the cavernous halls and died away. He was alone. Exhausted, faint, and throbbing with pain in every muscle, his sole feeling was delight at having escaped the torture. He sank upon the cold stone floor, and lay motionless for hour after hour in an ecstasy of relief. Presently he felt life gathering afresh in his bruised and aching body, and his mind recovering something of strength. A snapping noise at one side of the cell roused his attention, and he lifted himself hastily on one elbow. His keen gaze discerned a small iron plate at one side of the wall, and this had flown open. He sprang to examine it. From the aperture thus revealed he could look up through a narrow shaft lined with smooth black marble, and extending upward some thirty feet or more. As he looked, the opening at the top was darkened, and he only withdrew his head in time to escape the rapid fall of a shelf hung on slender chains, which descended to the level of his cell. It was filled to overflowing with a sumptuous meal. The richest meats, the daintiest fruits, the rarest wines, were before him. For a moment Luigi feared some hidden poison, but the respite from pain had enabled his native vigor to reassert itself, and he was consumed with hunger. He set the viands on the huge block of stone which must serve him for a table, and laughed aloud with childish pleasure as he began to eat.

"Ha!" he cried, "I shall have no uncontrollable longings for a cup of spring-water or a mouthful of fruit while the Dorias furnish such royal food!"

There was enough before him for six men, and Luigi had no haste. He ate leisurely, enjoying the savor of each mouthful, and as he did so he noticed a thin, weazened little mouse, which had squeezed itself through a crack beneath the heavy door of the dungeon and stared at him with bright, beady black eyes. The smell of the food overcame its natural timidity, and it came slowly nearer and nearer, its twinkling gaze following every mouthful he raised to his lips. The creature was evidently starving, and moved by compassion, Luigi threw it some crumbs, and watched with pleasure the voracity with which they were devoured. A few more crumbs, thrown nearer to himself, allured the only half satisfied creature to his side, but when he leaned over to seize it the mouse sprang back, terrified, and disappeared beneath the crack, from which no efforts of his could coax it back.

The next morning Luigi slept late, and was aroused by the snapping of the tiny door in the wall. The tray again bore him a bounteous meal, but this time he brought no such appetite to it. The gloom of his cell and the silence which enveloped him like a shroud weighed heavily on his spirit.

"I am buried alive," he cried, "and my friends might as well search the Mediterranean for the bones of the sailor drowned last year as search Genoa for me."

The hours passed drearily. His daily tortures had at least given him something to defy, and furnished exercise for his powers of endurance and self-control; but here there was nothing to be encountered, nothing to be overcome. His thoughts grew weary with tracing and retracing the same paths. Five times ere the scanty twilight died away did the tiny iron door burst open, and the heavily laden tray offer its delicacies in vain for his delight. No human being entered his dungeon, no sound penetrated the walls which enclosed him, and he well knew of what terrors this deprivation might become the source. In such a mood as this the presence of the mouse, which had crept close to him, afforded a welcome relief, and he joyfully threw it some morsels of bread, abstaining from any motion which might alarm it.

The third day passed as the second had done, except for one incident. As Luigi, reflecting on the probably unlimited imprisonment before him, wondered to what depths of vacancy his busy mind might sink, his eyes fell upon the tablet and the writing implements lying on the stone. He sprang up. "Ha!" he muttered, "they count upon my mind's failing, and think then in some flighty moment I may write the names they wish. We will make it safe!" Seizing the tablet, he with infinite pains divided it into a myriad bits, and scattered them over the floor. When next the tray descended it bore, besides the food, a fresh writing-tablet.

Luigi took it silently from the shelf and placed it on the stone. But as he did so he noted the exact place of each thing, and in the middle of the night he rose without a sound, poured the ink from the bronze cup, broke the point of the pen, and set them back as they had been before. No secret watcher could have detected the change, and no fresh implements descended to his subterranean abode. He felt satisfied his captors were ignorant of the means which he had taken to protect his loyalty against his own failing courage or sanity.

Thus wretched and forsaken, he looked forward with a pathetic interest to the coming of the mouse, which appeared as regularly as his meals. Unhappy as he was, here was a being still more miserable, who depended upon him for its scanty pleasure—even for its life. He selected from the stores before him all that he thought would best please its tiny palate, and watched with delight as it fed at his foot. At the end of a week the creature had grown so tame that it would allow Luigi to stroke it with his fingers, and so plump and smooth that it scarcely bore resemblance to the ravenous, rough-furred little animal that had first besought his charity.

Another week passed without a break except the daily coming and going of the faint and distant daylight, and the tricks and gambols of the tiny being that shared Luigi's solitude and furnished his one resource against encroaching melancholy. The familiarity between the man and the mouse had grown closer day by day, until, indeed, it had progressed so far as to become perhaps a little too great. The mouse had adopted one or two habits which were somewhat annoying. It did not scruple often to wake its master from a restless slumber by biting his hand, and would even, if the shelf descended without disturbing Luigi from his gloomy reveries, venture to make its way up the rough masonry of the wall and help itself, at its own sweet pleasure, to the tidbits which most attracted its taste—a custom all the more objectionable as the superabundant provision made at first had passed by a regular gradation into a comfortable repast for one man.

At this change, however, Luigi did not grumble, as there was still more than sufficient to satisfy his uncertain appetite, and it signified little to him that the wine had turned to water and the dainty viands to coarser fare. But as time passed he was troubled to perceive that the quantity was still slowly but steadily decreasing; and when one day he turned from the empty dishes with his hunger not wholly appeased he could no longer contend against the horrible fear that he was to be slowly starved to death. The suspicion gained weight as he recalled various unmistakable proofs. While he was revolving these gloomy thoughts the mouse frolicked recklessly over his feet, and he, worn, nervous, and impatient at this inopportune glee, with an uncontrollable movement of irritation, kicked it from him. The little animal planted itself on its hind paws at a short distance from him, and stared at him with a gleam of anger in its uncanny black eyes. Luigi, however, was too much absorbed to take notice of the conduct of his tiny companion, except by casting at it a glance of weariness and even repulsion, which showed that the feelings of amusement and kindness with which he had formerly regarded it had undergone some change. The mouse, as though well aware of the altered sentiments of its benefactor, crept stealthily away, and did not reappear until the descent of the shelf. Then it returned and stationed itself in front of Luigi, not as though begging him to grant it food as a favor, but rather as watching to see whether he would refuse. This he had no disposition to do, however; he was ashamed of his little ebullition of temper, and threw to the mouse a plentiful portion of the food provided for himself. The animal devoured its share without any effort to resume any of its tricksy familiarities, and an attempt of Luigi's to coax it within reach of his hand was unsuccessful.

At the end of two or three days more the prisoner's condition had become pitiable. The tray now descended but three times in the day, and the scanty provision which it brought made him look forward to each new arrival with feverish anxiety. He did not deny the mouse a share, but threw it the crumbs with a grudging hand, and the secret hostility between the two grew hourly stronger. The mouse no longer plagued him with excessive attentions, but would take refuge on some niche in the stones above Luigi's head, and there sit for hour after hour in the unbroken silence of the cell, its black and sparkling eyes staring at him with a persistence which he could not escape. It was in vain that he tried to distract his attention by turning his mind to scenes of his own past life, or letting it linger over such philosophical speculations as would formerly have sufficed to banish every other thought. Through all the windings of his brain the consciousness of that unchanging gaze pursued him. If he tried to battle more openly with his enemy, and to stare down his opponent, matters were still worse. He could not look into the mouse's eyes for more than a few seconds without their seeming to dilate and glitter with a harder light, until his mind felt paralyzed in the grasp of some wicked and incomprehensible power. Every time he subjected himself to the trial it was more difficult to shake off the mysterious influence, until he avoided the mouse's eyes resolutely, and when the consciousness that they were fixed upon him forced him for an instant to turn and meet them, he fairly screamed with dread. He might have banished the creature by violence, but he had an inexplicable repugnance to thus acknowledging his fear of it, and proving by a recourse to such brutal means the reality of its weird hold upon him.

Added to this were his physical sufferings from the daily decrease in his allowance of food, so that he now actually experienced the pangs of hunger. Three days more passed. The shelf now descended but once in the twenty-four hours, and even then brought him, in the shape of a crust of bread and a sip of water, barely enough to sustain life. There was now a constant struggle between Luigui and the mouse as to which should secure this pittance. It was true that the greater strength of the man enabled him to keep the mouse off when it approached him too closely at his meals. But strength, he learned, was not the only thing in question. The want of food rendered him sleepless, and once, unsatisfied with his mockery of a meal, he watched for twenty-four hours, without rest, for the return of the shelf. When the tiny portal burst asunder he leaped forward and stretched his hand into the opening, only to find the mouse there before him. After a brief struggle, Luigi, although weak from his privations, succeeded in rescuing the precious morsels from the animal, though at the cost of some severe bites. The two glared savagely at each other while the man devoured the bread. The mouse jumped down just in time to escape the rapid ascent of the shelf, and contrary to its usual custom, retreated from the cell. Luigi, with his hunger still unappeased, watched uneasily for the return of his little persecutor, but it did not come back, and there suddenly fell upon the unhappy man a dull drowsiness which he could not shake off. He rose and paced his dungeon, but finally stumbled and fell from sheer inability to lift his feet. He would have been unable to resist for a moment his desire to sleep, had it not been for dread of his enemy. Suppose the shelf should descend during his slumbers? But even this fear was insufficient to stimulate his flagging powers; the forces of life slowly withdrew to the remote recesses of his brain, and he sank into a sleep that was almost a swoon. All day his face, blanched with suffering and hunger, gleamed white and motionless in the faint light of the cell; all night his breathing, so weak it scarcely stirred the heavy air, trembled through the black silence.

Suddenly he woke with a start. He had been roused by some sharp noise. Reverting to his last waking thought, he sprang to the shaft, only to see the mouse sitting on the empty shelf beside an overturned water jug and an empty platter. The creature seemed staring at him with a grin of malice. With wild eyes and a cry of despair the unhappy man flung himself upon the mouse, and clutched it in both hands, concentrating in that grasp all the strength of which his madness was capable.

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That night the insurrection of Fiesco threw open the dungeons of the ducal palace and set the prisoners free, but too late to save Luigi. The friends who rescued him knew that he had been faithful through trials, and for the rest of his short life he was tenderly guarded. But an incurable maniac, he moaned perpetually under the spell of some strange power, and occasionally broke into fearful paroxysms of terror, in which he would endeavor to throttle his attendants, under the hallucination that his mysterious enemy had once more come to life in them.

Zoe Dana Underhill.

ABRAM STEVENS HEWITT.

Abram Stevens Hewitt, the present Mayor of the city of New York and candidate for re-election, is a native of the town of Haverstraw, on the Hudson River, and sixty-six years of age, the date of his birth being July 31, 1822. His early education was acquired in the public schools of the city, and through a special examination he gained a scholarship in Columbia College, from which he was graduated at the head of his class in 1842. He paid a considerable share of his college expenses by teaching, and remained in the institution two years after graduating, as an instructor in mathematics. In 1844 he went to Europe as a companion to his classmate **Edward Cooper**, son of **Peter Cooper**, the distinguished philanthropist, and afterward became his partner in business, and in 1855 married his sister. The firm of **Cooper & Hewitt** built up a large business in iron manufacturing, having works at Trenton, Ringwood, Pequest, and Durham, in New Jersey. In 1862 Mr. **Hewitt** went to England to study the process of making gun-barrel iron, but in furnishing the material to the United States government during the war the firm lost money. He was mainly instrumental in introducing into this country the **Martin-Siemens** process of steel-making. He has continued in the iron and steel business, with varying results, but on the whole with profit to himself, during his political career. The works of his firm have been remarkably free from serious labor troubles, and it has been their practice to keep the furnaces going at a loss during dull times rather than throw their men out of work. Mr. **Hewitt** was the leading spirit in planning and carrying out the beneficent work of the Cooper Union, the principal philanthropic undertaking of his father-in-law. As secretary of the Board of Trustees he long directed the financial details and the educational work of the institution.

It was not until the breaking up of the **Tweed** Ring in 1871 that Mr. **Hewitt** came prominently forward in politics. He took an active part in the reform work for which the opportunity was then opened, and in the effort to purify the local Democratic organization he became a sachem of the Tammany Society and chairman of its General Committee. In 1874 he was elected to Congress as the regular Democratic candidate, defeating **James O'Brien**, who was an independent Democrat. He was re-elected in 1876 over a Republican competitor, and the same year he served his party as chairman of its National Committee. By this time division appeared in the Tammany organization; a strong element, headed by **John Kelly**, was opposed to **Samuel J. Tilden** and his supporters, who included Mr. **Hewitt**. A rival organization was started under the name of Irving Hall, but in this Mr. **Hewitt** took no part, though in 1879 he did help to organize the County Democracy. He became a candidate for Congress again in 1880 (having declined to run in 1878), and was elected. He continued his service in the national House of Representatives until elected Mayor of New York city in the fall of 1886. He took a prominent part in legislative work and in debates, and acquired a national reputation by the thorough knowledge of public questions which he displayed, and his ability in dealing with them. He was a constant advocate of sound methods of finance, and favored a careful and discriminating revision of the tariff, with a view to reducing the revenues to the needs of the government, and preserving such protection to manufactures as could be shown to be necessary. He took a constant interest in all matters pertaining to the national well-being of the country and its people, as well as those relating to the progress of science and education.

In 1886 the two Democratic organizations of the city of New York, known as Tammany Hall and the County Democracy, were confronted with the question of uniting in support of a candidate for Mayor, in view of the threatening prominence of **Henry George** as the candidate of the Labor organizations. Mr. **Hewitt** was not closely identified with either faction, though he held a nominal membership in the County Democracy, while his sympathies for years had been bestowed on the side of reform in political methods and improvement in municipal administration. Tammany adroitly forced the union of the two factions by presenting Mr. **Hewitt** as a candidate for Mayor, and asking the County Democracy to accept him, which it could hardly fail to do. The result was the election of the candidate by a vote of 90,552 against 68,110 for **Henry George** and 60,435 for **Theodore Roosevelt**, the Republican candidate. Mr. **Hewitt** began his administration with the opening of 1887 without any flourish or promises, and set about studying the requirements of the city and the conditions of a successful management of its interests. His changes in official positions were made with caution, but he failed to please the politicians, especially those of Tammany Hall, whose claims were generally disregarded. After the close of his first year in office Mr. **Hewitt** sent the results of his study of municipal needs to the Board of Aldermen in three successive messages, in which were set forth with great clearness and vigor the requirements of the city in regard to financial administration, improvement of the service in various departments, provision of better means of rapid transit, etc. These messages were at once accepted as proposing a scheme of local improvement of great advantage to the city, and won for the Mayor many evidences of strong public support. He then avowed and maintained his complete independence of all political organizations and factions, and his determination to make appointments with sole reference to the honest and efficient management of municipal affairs. The independent position thus assumed led to a general demand from the people not associated with political "machines" for his continuance in the office of Mayor, though he professed a wish to retire from the arduous and exacting position, and a hope that a fit candidate would be presented by a union of the Democratic organizations. It being understood that Tammany would not agree to such a union, Mr. **Hewitt** was put in nomination by a mass-meeting of citizens of both parties October 4th, and two days later the County Democracy accepted him as its candidate, Tammany having already put its own candidate in the field in the person of **Hugh J. Grant**. The contest for Mr. **Hewitt**'s re-election is practically between the politicians and their adherents of both parties, on one side, and the citizens, on the other, who wish to free municipal administration from the control of political factions of every kind, and have it conducted honestly and efficiently on business principles.

HOP-PICKING IN PUYALLUP.

Two small streams heading in the glaciers of Mount Tacoma unite and form the Puyallup River, a small watercourse emptying into Commencement Bay, Washington Territory, on the border of Puget Sound. Several similar streams water valleys like that of the Puyallup, and for some reason all of these are famous grounds for hop-raising. The valley of the Puyallup is about thirty miles long, and its entire area is either devoted to hop culture or is being cleared preparatory thereto. The soil of the valley is a warm, rich, black loam, and its constituents are so peculiarly adapted to the uses that it has been put to that a failure of the crop is a thing unknown. The average yield is fifteen hundred pounds, but one ton of hops to the acre is by no means an exceptional crop. The cost of cultivation is locally set down at prices ranging from eight to ten cents a pound, and as the average price is more than twenty cents per pound, the profit of a Puyallup hop ranch may be easily reckoned.

Hop culture in these parts had a great boom in 1882, when, owing to the failure of the crop in Europe, prices all over the world went up. The Puyallup growers were struggling with adversity, barely earning a living, when they suddenly found themselves rich beyond the dreams of avarice. Prices mounted from a few cents per pound to thirty-five cents, and even one dollar. Families that had been rubbing along on the barest necessaries of life were made rich in a single season. Individual crops that year brought from $10,000 to $60,000, and in one instance at least a grower sold his hop harvest for $100,000. Bachelors sought out wives, humble ranchers built handsome houses, prosperity bloomed and bourgeoned throughout the length of the valley, and more than one happy couple spent much time ransacking the shops of Tacoma in search of gems and "articles of bigotry and virtue" to suit their altered circumstances in life. It so happened, too, that that very year the discouraged inhabitants of Josephine County, Oregon, a famous hop-growing region, had pulled up their vineyards and planted other crops, the hop market being voted too unprofitable for them. The Washington Territory hop-growers had things all their own way for a time.

Since that golden era hop culture has flourished mightily in the valleys of the Puyallup and the White rivers. A man with twenty acres of hop-bearing land is counted rich in Puyallup Valley. The prices of hops fluctuate more, it is said, than those of any other agricultural product. But the yield is certain, the product well known and well liked in the world's markets, and there is no failure, no blight or disease. Slips planted in the early spring bear well before the end of the long warm season. The hop gardens present a most beautiful and attractive sight when the season for picking begins. The vines are trained on upright poles about fifteen feet high, and the brilliant greenery, graceful festoons, and delicate tendrils, lush and luxuriant, form a stately array in their serried ranks. The picking, usually begun in October, is chiefly done by the Indians, who flock hither in hop time from hundreds of miles away up and down the coast. In their high-prowed canoes, each fashioned from a single cedar log and ornamented with barbaric art, they navigate the tortuous waters of the Sound and its affluents, and bag and baggage, wives and children, migrate to the hop regions for harvest-work. The pickers work in gangs, but one Indian is recognized as the captain of each box. He receives at the drying-house one silver dollar, cash in hand paid, for each boxful delivered. The drying-houses are usually picturesque objects in the verdant landscape, being browned by the smoke of the slow fires that smoulder in the lower floor; for the hop must be dried slowly, in order to insure the full richness of its quality, and the Washington Territory hops are among the richest in the world. A deep draught of the delicious aroma that exhales from the great masses of slowly drying hops in the larger houses is almost intoxicating. It is suggestive of food and drink and perfume.

On the horizon of this beautiful picture in the hop vineyard looms, cloud-like, the ever-snowy peak of Tacoma, nearly 15,000 feet high. In the foreground is the tented village of the nomadic hop-pickers, close by the milky stream that issues from the glaciers, all with a background of intensely green columns of hop vines, backed again by the sombre verdure of the firs and pines. These form a picture which, once seen, can never be forgotten. When the slow process of drying, pressing, and baling the crop is over, the army of harvesters strikes its tents and melts away, and winter closes over the brown fields as it was wont.

SCULPTURED ROCK ON THE COLUMBIA RIVER.

In primitive man the desire was implanted to perpetuate the remembrance of the deity he worshipped, and his religious feelings found material expression. The granitic rock in the desert took shape in the Sphinx. Taking nature in its massive proportions and consequent indestructibility, at once distinguishing prominence and lasting powers were secured. Time must have destroyed many of these monoliths. It is of course only the largest of these monuments, or those of a particularly hard stone, which have come down to us.

That aboriginal people living on the west coast of North America must have had a civilization—if it can be so called—which differed widely from that of other Indian races. Whether their art inclinations were derivable from Asiatic sources is something future ethnologists will determine. The early dweller in Oregon had big ideas, for he cut and carved his totems or his divinities in huge timbers. The great trunks of trees found in the primitive forests exactly suited his purpose. With a patience which was exhaustless he cut trees and reared huge objects of worship, or by means of heraldic devices, Brobdingnagian blazons, he informed others of his lofty lineage. In Oregon, on an island of the Columbia River, where there is a great swirl of water called Hell Gate, one hundred and seven miles from Portland and twenty-one miles beyond the Dalles, a massive rock stands on the shore. It has a graceful curve toward the water, which gives it the look of a buttress. Toward the land there gazes a massive portrait, the profile of which is that of an Indian. Forehead, nose, heavy lips, chin—all are there. Some natural freak of nature may have had a helping hand from art. It requires no hint for the observer to catch at once that distinct profile. When it was fashioned no one knows. The natives call this rock, in their language, "The Great Chief of the Columbia River," and have many superstitions in regard to it. They believe that in a moment of ire the great spirit turned into stone some disobedient chief. Very far back, as tradition shows, these Indians worshipped this rock; but with the coming of the whites this custom has ceased. The Indians approach it, however, to-day with awe, and as a very old Indian told the artist, he "did not dare touch it, fearful that he too would be turned into stone." When shown the original sketch from which the illustration was taken, the old fellow refused to touch it, believing that the paper on which the profile rock had been drawn might act as a death-dealing charm.

MARVELS OF MISTRANSLATION.

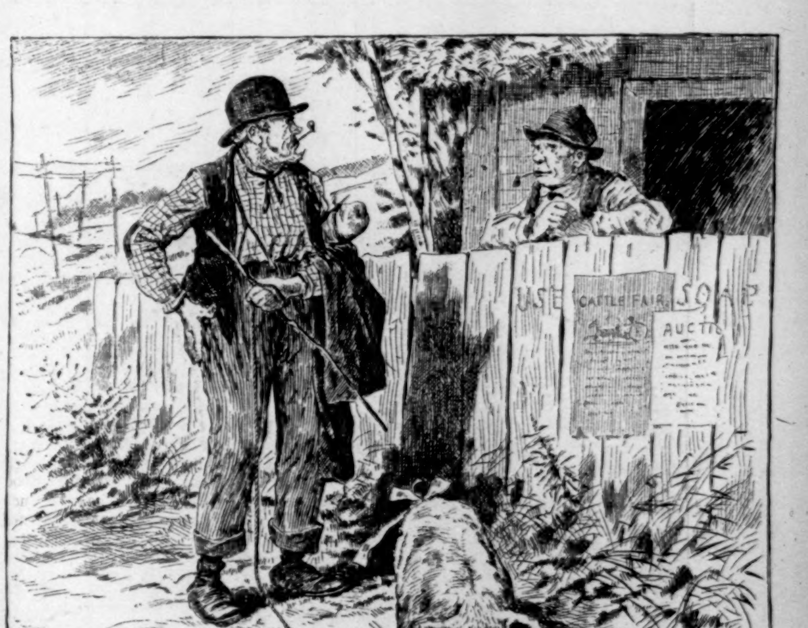
The English student who translated the Greek epithet "embrontêtos" (a thunderstruck or idiotic person) by "a thundering fool," was nearer the mark than most of his rivals in the art of mistranslation. A recent telegram to St. Petersburg announcing the foundering of the bark *Calypso* "off the Isle of Wight in a calm sea" was improved by a hasty translator into a statement that she had foundered "off the Isle of Wight in the Pacific Ocean!" One account of the late German Emperor's funeral stated that the sermon was preached on a text taken from "the Book of Jacob"—a hitherto unknown portion of Holy Writ—the real words being "the Epistle of James" (Jakob). An English translator of a German novel rendered *Ich habe einen Gast bekommen* (I have got a guest) by "I have become a ghost." Another transformed "food for reptiles" into "the Diet of Worms." In a French version of *Guy Mannering* the phrase "a stickit minister" (unsuccessful preacher) figured as *un ministre assassiné*.

Nor are the titles of books a less fruitful field of mistranslation than their contents. A Vienna translation of George Eliot's *Felix Holt, the Radical*, was entitled *Felix! Hold the Rascal!* The play of *Love's Last Shift* was reproduced in Paris as *La Dernière Chemise de l'Amour*. *Rob Roy* still figures in Russia as *Bob the King*, "Roy" having been confused with "Roi." A similar misconception turned *Mémoires de Roy d'Argens* into *Memoirs of a Silver King*—an exploit almost rivalling that of the farmer who named a pet rooster "Robinson" because he "*crew so*."

Most admirers of the Duke of Wellington are familiar with the Iron Duke's characteristic answer to his secretary's question as to what reply he should send to Marshal Junot's proposal of an armistice: "Tell him to be" (something unprintable) "in *civil* French." How the poor secretary acquitted himself of this rather difficult commission is still a mystery; but he probably followed the example of the polite man who, not wishing to give a romancing talker the lie direct, assured him that "if he were to write a work of fiction it would have a wonderful sale."

But the palm of mistranslation is certainly due to an Englishman who some years ago came to a foreign teacher to be "finished" in German, and was asked to write a sentence of colloquial English, and then to translate it. He wrote, "He has bolted, and has not settled his bill," translating it by *Er hat verriegelt, und hat nicht einsiedelt seinen Schnabel*. "Verriegeln" meaning "to *bolt* a door," "einsiedeln" "to *settle* as a colonist," and "Schnabel" "the *bill* of a bird," this extraordinary sentence really signified, "He has driven in a bolt, and has not colonized his beak."

David Ker.



WHAT HE GOT.

"Phwat's the matter, Pat? It's not cheerful ye air, at all at all."

"Faith, no! It's down to the cattle foire as the pig an' meself have walked, twinty moile an' back, an' it's mighty toired oi am."

"Got the first proize, I hope?"

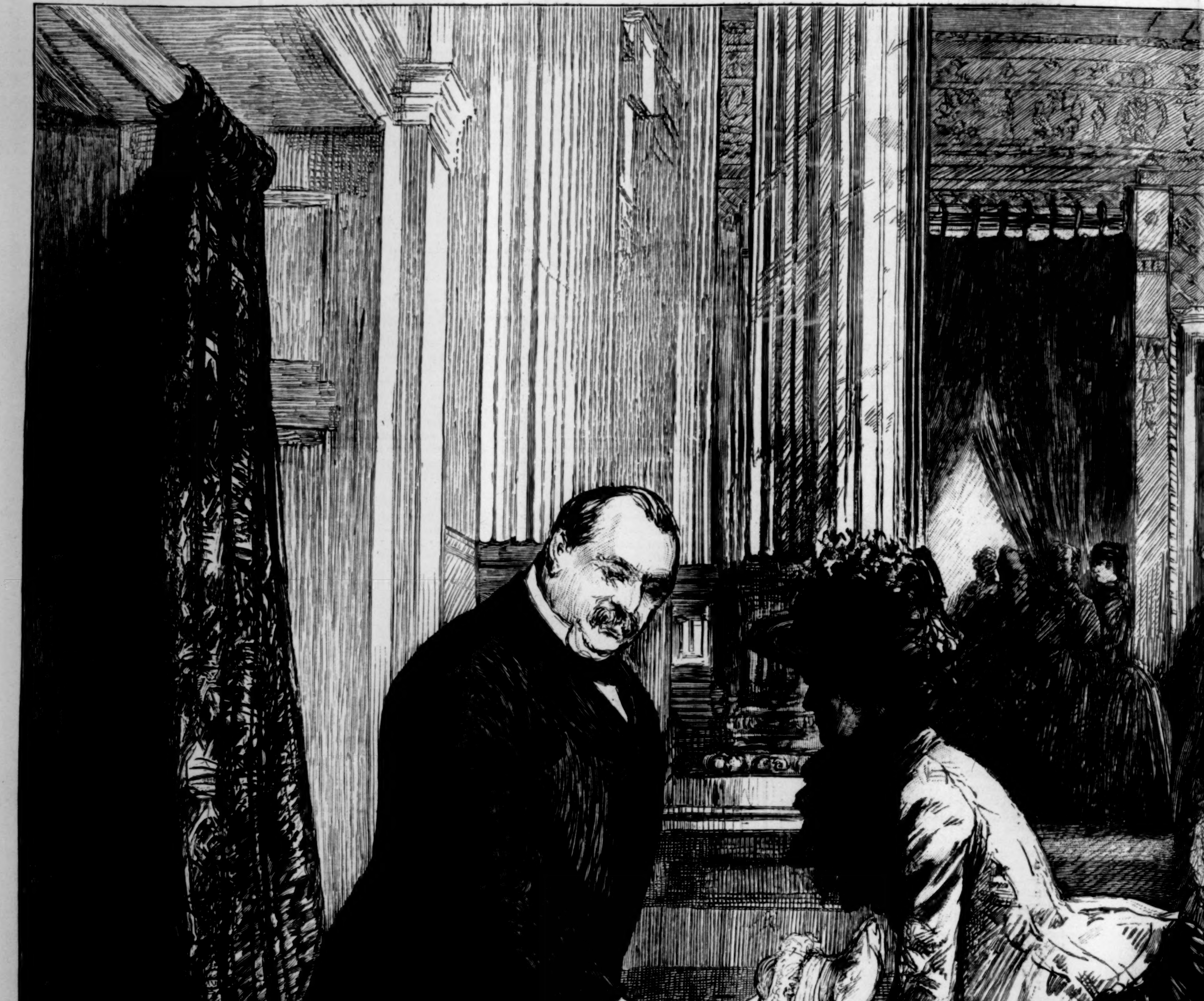
"No."

"Second?"

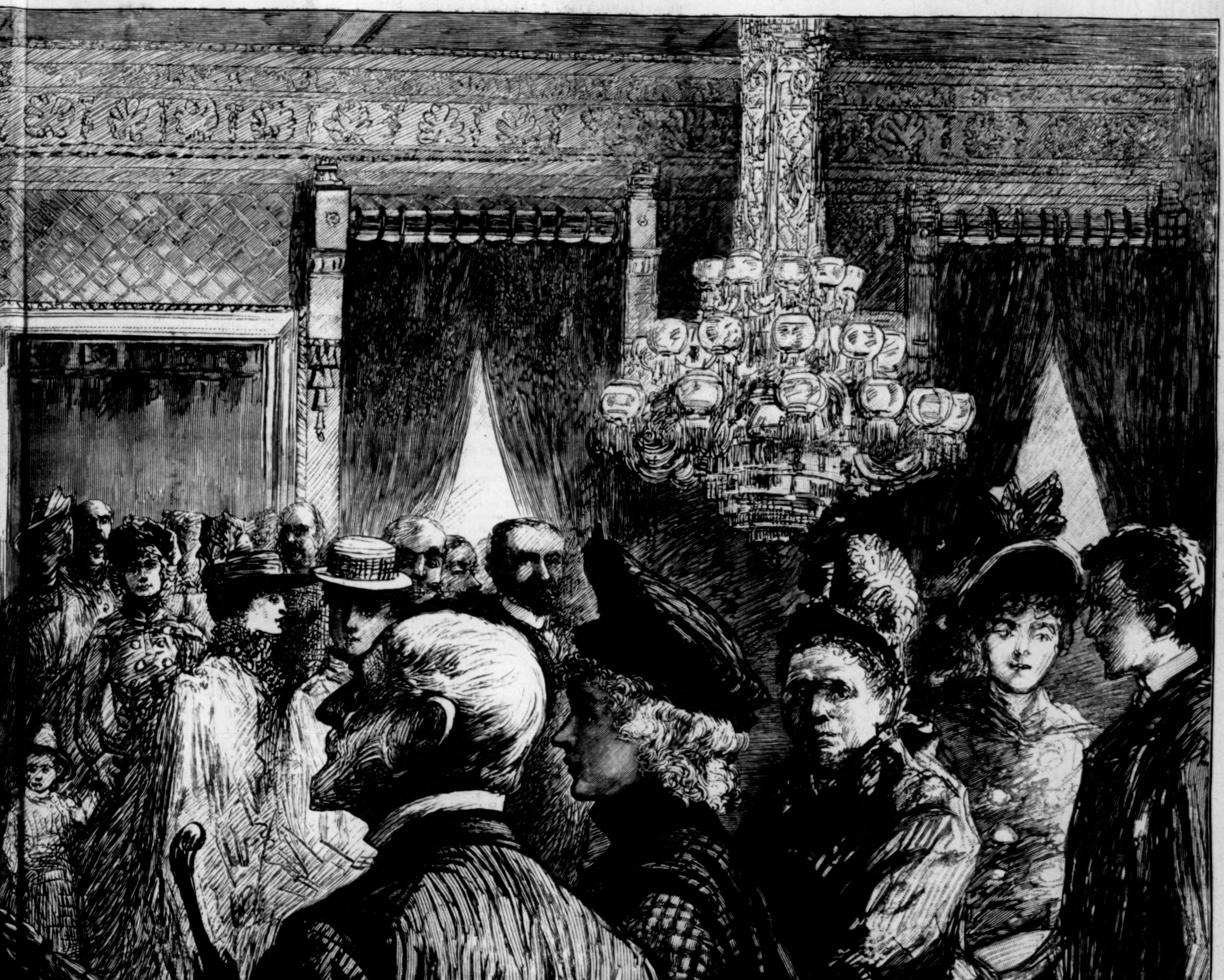
"No."

"An' didn't ye get annything?"

"Begorra, yis! The playsure av the pig's sacoiety down an' back, annyway."



A PUBLIC RECEPTION AT THE WHITE HO



HOUSE.—Drawn by Paul Renouard.—[See Page 799.]

COLONEL QUARITCH, V.C.[*]

By H. RIDER HAGGARD,

Author of "She," "King Solomon's Mines," "Allan Quatermain," etc.

CHAPTER XXXV.

THE SWORD OF DAMOCLES.

At last the weary journey was over, and to George's intense relief he found himself upon the platform at Boisingham. He was a pretty tough subject, but he felt that a very little more of the company of the fair Edithia would be too much for him. As it happened, the station-master was a particular friend of his, and the astonishment of that worthy when he saw the respectable George in such company cannot be expressed in words.

"Why, boar! Well, I never! Is she a furriner?" he ejaculated, in astonishment.

"If you mean me, you dirty, wheel-greasing steam boss, you," said Edithia, who was by now in fine bellicose condition, "I'm no more foreign than you are. Shut your ugly mouth, can't you? or"—and she took a step toward the stout station-master. He retreated precipitately, caught his heel against the threshold of the booking office, and vanished backward with a crash.

"Steady, marm, steady," said George. "Save it up now, do; and as for you, don't you irritate her, none of you, or I won't answer for the consequences, for she's an injured woman, she is, and injured women is apt to be dangerous."

As chance would have it, a fly which had brought somebody to the station was still standing there, and into it George bundled his fair charge, telling the driver to go to the Sessions House.

"Now, marm," he said, "listen to me: I'm going to take you to the man as has wronged you. He's sitting as clerk to the magistrates. Do you go up and call him your husband. Then he'll tell the policeman to take you away. Then do you sing out for justice, because when people sings out for justice everybody's bound to listen, and say that you want a warrant against him for bigamy, and show them the marriage certificate. Don't you be put down, and don't you spare him. If you don't startle him you'll never get anything out of him."

"Spare him!" she snarled; "I'll make him sit up; I'll have his blood! But look here, if he's put in chokey, where's the tin to come from?"

"Why, marm," answered George, with splendid mendacity, "it's the best thing that can happen for you, for if they collar him, you get the property, and that's law."

"Oh," she answered, "if I'd known that, he'd have been collared long ago, I can tell you."

"Come," said George, seeing that they were nearing their destination, "have one more nip, just to keep your spirits up," and he produced the brandy bottle, at which she took a long pull.

"Now," he said, "go for him like a wild-cat."

"Never you fear," she said.

They dismounted from the cab and entered the court-house without attracting any particular notice. The court itself was crowded, for a case which had excited public interest was coming to a conclusion. The jury had given their verdict, and sentence was being pronounced by Mr. De la Molle, the chairman.

Mr. Quest was sitting at his table below the bench, taking some notes.

"There's your husband," he whispered; "now do you draw on."

George's part in the drama was played, and with a sigh of relief he fell back to watch its final development. He saw the fierce tall woman slip through the crowd like a snake or a panther to its prey, and some compunction touched him when he thought of the prey. He glanced at the elderly, respectable-looking gentleman at the table, and reflected that he too was stalking his prey—the old Squire and the ancient house of De la Molle. Then his compunction vanished, and he rejoiced to think that he would be the means of destroying a man who, to fill his pockets, did not hesitate to destroy the family with which his life and the lives of his forefathers for many generations had been interwoven.

By this time the woman had fought her way through the press, bursting the remaining buttons off her ulster in so doing, and reached the bar which separated the spectators from the space reserved for the officials. On the further side of the bar was a gangway, then came the table at which Mr. Quest sat. He had been busy writing something all this time; now he rose and passed it to Mr. De la Molle, and then turned to sit down again.

Meanwhile his wife had craned her long, lithe body forward over the bar till her head was almost level with the hither edge of the table. There she stood glaring at him, her wicked face alive with fury and malice, for the brandy she had drunk had caused her to forget her fears.

As Mr. Quest turned, his eye caught the flash of color from the peacock-feather hat. From thence it travelled to the face beneath.

He gave a gasp, and the court seemed to whirl round him. The sword had fallen indeed.

"Well, Billy," whispered the hateful voice, "you see I've come to look you up."

With a desperate effort he recovered himself. A policeman was standing near him. He beckoned to him, and told him to remove the woman, who was drunk. The policeman advanced and touched her on the arm.

"Come, you be off," he said; "you're drunk."

At that moment Mr. De la Molle ceased giving judgment.

"I ain't drunk," said the woman, loud enough to attract the attention of the whole court, which now for the first time observed her extraordinary attire; "and I've a right to be in the public court."

"Come on," said the policeman; "the clerk says you're to go."

"The clerk says so, does he?" she answered; "and do you know who the clerk is? I'll tell you all," and she raised her voice to a scream. "He's my husband, my lawful wedded husband, and here's proof of it;" and she took the folded certificate from her pocket and flung it so that it fell upon the desk of one of the magistrates.

Mr. Quest sank into his chair, and there was a silence of astonishment through the court.

The Squire was the first to recover himself.

"Silence!" he said, addressing her. "Silence! This cannot go on here."

"But I want justice," she shrieked. "I want justice; I want a warrant against that man for *bigamy*." (Renewed sensation.) "He's left me to starve—me, his lawful wife. Look here"—and she tore open the pink satin tea gown—"I haven't enough clothes on me; the bailiffs took all my clothes; I have suffered his cruelty for years, and borne it, and I can bear it no longer. Justice, your worships; I only ask for justice."

"Be silent, woman," said Mr. De la Molle; "if you have any criminal charge to bring against anybody, there is a proper way to make it. Be silent, or leave this court."

But she only screamed the more for *justice*, and loudly detailed fragments of her woes to the eagerly listening crowd.

Then policemen were ordered to remove her, and there followed a most frightful scene. She shrieked and bit and fought in such a fashion that it took four men to drag her to the door of the court, where she dropped exhausted against the wall in the corridor.

"Well," said the observant George to himself, "she has done the trick proper, and no mistake. Couldn't have been better. That's a master one, that is." Then he turned his attention to the stricken man before him. Mr. Quest was sitting in his chair, his face ashen, his eyes wide open, and his hands placed flat on the table before him. When silence had been restored he rose and turned to the bench, apparently with the intention of addressing the court. But he said nothing, either because he could not find words or because his courage failed him. There was a moment's intense silence, for every one in the crowded court was watching him, and the sense of it seemed to take what resolution he had left out of him. At any rate, he left the table and hurried from the court. In the passage he found the Tiger, who, surrounded by a little crowd, and with her hat awry and her clothes half torn from her back, was huddled gasping against the wall.

She saw him and began to speak, but he stopped and faced her. He faced her, grinding his teeth, and with such an awful fire of fury in his eyes that she shrank from him in terror, flattening herself against the wall.

"What did I tell you?" he said, in a choked voice, and then passed on. A few paces down the passage he met one of his own clerks, a sharp fellow enough.

"Here, Jones," he said, "you see that woman there. She has made a charge against me. Watch her. See where she goes to, and find out what she is going to do. Then come and tell me at the office. If you lose sight of her, you lose your place too. Do you understand?"

"Yes, sir," said the astonished clerk; and Mr. Quest was gone.

He made his way direct to the office. It was closed, for he had told his clerks that he should not come back after court, and that they could go at half past four. He had his key, however, and entering, lit the gas. Then he went to his safe and sorted some papers, burning a good number of them. Two large documents, however, he put by his side to read. One was his will, the other was endorsed "Statement of the circumstances connected with Edith."

First he looked through his will. It had been made some years ago, and was entirely in favor of his wife, or rather of his reputed wife, Belle.

"It may as well stand," he said, aloud. "If anything happens to me she'll take about ten thousand under it, and that was what she brought me." Taking a pen, he went through the document carefully, and wherever the name of "Belle Quest" occurred he put a ʌ, and inserted these words, "Gennett, commonly known as Belle Quest," Gennett being Belle's maiden name, and initialled the correction. Next he glanced at the statement. It contained a full and fair account of his connection with the woman who had ruined his life. "I may as well leave it," he thought; "some day it will show Belle that I was not quite so bad as I seemed."

He replaced the statement in a brief envelope, sealed and directed it to Belle, and finally marked it, "Not to be opened till my death. W. Quest." Then he put the envelope away in the safe and took up the will for the same purpose. Next it on the table lay the deeds executed by Edward Cossey, transferring the Honham mortgages to Mr. Quest in consideration of his abstaining from the commencement of a suit for divorce, in which he proposed to join Edward Cossey as corespondent. "Ah!" he thought to himself, "that game is up. Belle is not my legal wife, therefore I cannot commence a suit against her in which Cossey would figure as corespondent, and so the consideration fails. I am sorry for that, for I should have liked him to lose his thirty thousand pounds as well as his wife, but it can't be helped. It was a game of bluff, and now that the bladder has been pricked, I haven't a leg to stand on."

Then, taking a pen, he wrote on a sheet of paper which he inserted in the will: "Dear B.,—You must return the Honham mortgages to Mr. Edward Cossey. As you are not my legal wife, the consideration upon which he transferred them fails, and you cannot hold them in equity, nor I suppose would you wish to do so.—W. Q."

Having put all the papers away, he shut the safe at the moment that the clerk whom he had deputed to watch the Tiger knocked at the door and entered.

"Well?" said his master.

"Well, sir, I watched the woman. She stopped in the passage for a minute, and then George, Squire De la Molle's man, came out and spoke to her. I got quite close, so as to hear what he said, and he said, 'You'd better get out of this.'

"'Where to?' she answered. 'I'm afraid.'

"'Back to London,' he said, and gave her a sovereign; and she got up without a word and slunk off to the station, followed by a mob of people. She's in the refreshment-room now, but George sent word to say that they ought not to serve her with any drink."

"What time does the next train go—7.15, does it not?" said Mr. Quest.

"Yes, sir."

"Well, go back to the station and keep an eye upon that woman, and when the time comes get me a first-class return ticket to London. I shall go up myself and give her in charge there. Here is some money," and he gave him a five-pound note. "And look here, Jones; you need not trouble about the change."

"Thank you, sir, I'm sure," said Jones, to whom, his salary being a guinea a week, on which he supported a wife and family, a gift of four pounds was sudden wealth.

"Don't thank me, but do as I tell you. I will be down at the station at 7.10. Meet me outside and give me the ticket. That will do."

When Jones had gone, Mr. Quest sat down to think.

So it was George who had loosed this woman on him, and that was the meaning of his mysterious warnings. How had he found her? That did not matter; he had found her, and in revenge for the action taken against the De la Molle family he had brought her here to denounce him. It had been cleverly managed too. Mr. Quest reflected to himself that he should never have given the man credit for the brains. Well, that was what came of underrating people.

And so this was the end of all his hopes, ambitions, shifts, and struggles! The story would be in every paper in England before another twenty-four hours were over, headed "*Remarkable Occurrence at Boisingham Quarter Sessions.—Alleged Bigamy of a Solicitor.*" No doubt, too, the Treasury would take it up, and institute a prosecution. This was the end of his strivings after respectability and the wealth that brings it. He had overreached himself. He had plotted and schemed and hardened his heart against the De la Molle family, and fate had made use of his success to destroy him. In another few months he had expected to be able to leave this place a wealthy and respected man; and now—He laid his hand upon the table and reviewed his past life, tracing it up from year to year, and seeing how the shadow of this accursed woman had haunted him, bringing disgrace and terror and mental agony with it, making his life a misery. And now what was to be done? He was ruined. Let him fly to the utmost parts of the earth, let him burrow in the recesses of the cities of the earth, and his shame would find him out. He was an impostor, a bigamist, one who had seduced an innocent woman into a mock marriage, and then taken her fortune to buy the silence of his lawful wife. More—he had threatened to bring an action for divorce against a woman to whom he knew he was not really married, and made it a lever to extort vast sums of money or their value.

What is there that a man in this position can do?

He can do two things: he can revenge himself upon the author of his ruin; and if he be bold enough he can put an end to his existence and his sorrows at a blow.

Mr. Quest rose and walked to the door. Halting, he turned and looked round the office in that peculiar fashion wherewith the eyes take their adieu. Then with a sigh he went.

Reaching his own house, he hesitated whether or no to enter. Had the news reached Belle? If so, how was he to face her? Her hands were not clean, indeed, but at any rate she had no mock marriage in her record, and her dislike of him had been unconcealed throughout. She had never wished to marry him, and never for one single day regarded him otherwise than with aversion.

After reflection he turned and went round by the back way into the garden. The curtains of the French windows were drawn, but it was a wet and windy night, and the draught occasionally lifted the edge of one of them. He crept like a thief up to his own window and looked in. The drawing-room was lighted, and in a low chair by the fire sat Belle. She was as usual dressed in black, and to Mr. Quest, who loved her, and who knew that he was about to bid farewell to the sight of her, she looked more beautiful now than ever. A book lay open on her knee, and he noticed, not without surprise, that it was a Bible. But she was not reading it; her dimpled chin rested on her hand, and her violet eyes were fixed on vacancy, and even from where he was he thought that he could see the tears in them.

She had heard nothing; he was sure of that from the expression of her face. She was thinking of her own sorrows, not of his shame.

Yes, he would go in.

CHAPTER XXXVI.

HOW THE GAME ENDED.

Mr. Quest entered the house by a side door, and having taken off his hat and coat, went into the drawing-room. He had still half an hour to spare before starting to catch the train.

"Well," said Belle, looking up, "why are you so pale?"

"I have had a trying day," he answered. "What have you been doing?"

"Nothing in particular."

"Reading the Bible, I see."

"How do you know that?" she asked, coloring a little, for she had thrown a newspaper over the book when she heard him coming in. "Yes, I have been reading the Bible. Don't you know that when everything else in life has failed them, women generally take to religion?"

"Or drink," he put in. "Have you seen Mr. Cossey lately?"

"No. Why do you ask that? I thought that we had agreed to drop that subject."

As a matter of fact it had not been alluded to since Edward left the house.

"You know that Miss De la Molle will not marry him after all?"

"Yes, I know. She will not marry him because you forced him to give up the mortgages."

"You ought to be much obliged to me. Are you not pleased?"

"No. I no longer care about anything. I am tired of passion and sin and failure. I care for nothing any more."

"It seems that we have both reached the same goal, but by different roads."

"You?" she answered, looking up; "at any rate, you are not tired of money, or you would not do what you have done to get it."

"I never cared for money itself," he said. "I only wanted money that I might be rich and therefore respected."

"And you think any means justifiable so long as you get it?"

"I thought so. I do not think so now."

"I don't understand you to-night, William. It is time for me to go to dress for dinner."

"Don't go just yet. I'm leaving in a minute."

"Leaving? Where for?"

"London. I have to go up to-night about some business."

"Indeed! When are you coming back?"

"I don't quite know—to-morrow perhaps. I wonder, Belle," he went on, his voice shaking a little, "if you will always think as badly of me as you do now."

"I?" she said, opening her eyes widely. "Who am I that I should judge you? However bad you may be, I am worse."

"Perhaps there are excuses to be made for both of us," he said. "Perhaps, after all, there is no such thing as free-will, and we are nothing but pawns moved by a higher power. Who knows? But I will not keep you any longer. Good-by. Belle!"

"Yes."

"May I kiss you before I go?"

She looked at him in astonishment. Her first impulse was to refuse. He had not kissed her for years. But something in the man's face aroused her. It was always a refined and melancholy face, but to-night it wore a look which to her seemed almost unearthly.

"Yes, William, if you wish," she said; "but I wonder that you care to."

"Let the dead bury their dead," he answered, and stooping he put his arm round her delicate waist, and drawing her to him kissed her tenderly, but without passion, on the forehead. "There, good-night," he said; "I wish that I had been a better husband to you. Good-night;" and he was gone.

When he reached his room he flung himself for a few moments face downward upon his bed, and from the convulsive motion of his back an observer might almost have believed that he was sobbing. When he rose, however, there was no trace of tears or tenderness upon his features. On the contrary, they were stern and set, like the features of one bent upon some terrible endeavor. Going to a drawer, he unlocked it and took from it a Colt's revolver of the small pattern. It was loaded, but he took the cartridges out and replaced them with fresh ones from a tin box. Then he went down-stairs, put on a large ulster with a high collar, and a soft felt hat, the brim of which he turned down over his face, placed the pistol in the pocket of the ulster, and started.

It was a dreadful night, the wind was blowing a very heavy gale, and between the gusts the rain came down in sheets of driving spray. Nobody was about the streets—the weather was far too bad—and Mr. Quest reached the station without meeting a living soul. Outside the circle of light from the lamp over the doorway he paused, and looked about for the clerk Jones. Presently he saw him walking backward and forward under the shelter of a lean-to, and going up, touched him on the shoulder.

The man jumped and started back.

"Have you got the ticket, Jones?" he asked.

"Lord, sir," said Jones, "I didn't know you in that get-up. Yes, here's the ticket."

"Is the woman there still?"

"Yes, sir; she's taken a ticket—third-class—to town. She has been going on like a wild thing because they would not give her any liquor at the refreshment bar, till at last she frightened them into letting her have six of brandy. Then she began and told the girl all sorts of tales about you, sir; said she was going back to London because she was afraid that if she stopped here you would murder her, and that you were her lawful husband, and that she would have a warrant out against you, and I don't know what all. I sat by there, and heard her with my own ears."

"Did she—did she indeed?" said Mr. Quest, with an attempt at a laugh. "Well, she's a common thief, and worse, that's what she is, and by this time to-morrow I hope to see her safe in jail. Ah! here comes the train. Good-night, Jones; I can manage for myself now."

"What's his game?" said Jones to himself, as he watched his master slip on to the platform by a gate instead of going through the booking office. "Well, I've had four quid out of it, any-way, and it's no affair of mine," and Jones went home to tea.

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[*] Begun in Harper's Weekly No. 1646.

Meanwhile Mr. Quest was standing on the wet and desolate platform quite away from the lamps, watching the red lights of the approaching train come rushing on through the storm and night. Presently the train drew up. No passengers got out.

"Now, ma'am, look sharp, if you're going," cried the porter, and the woman Edith came out of the refreshment-room.

"There's the third, forrard there," said the porter, going to the other end to see about the packing away of the mails.

On she came, passing quite close to Mr. Quest, so close that he could hear her swearing at the incivility of the porter. There was a third-class carriage just opposite, and into this she got. It was one of those carriages that are still often to be seen on provincial lines, in which the partitions do not go up to the roof, and was, if possible, more vilely lighted than usual. Indeed, the light which should have illuminated the after-half of it had either never been lit or had gone out. There was not a soul in the whole length of the carriage.

As soon as the Tiger was in, Mr. Quest watched his opportunity, and slipping up to the dark carriage, opened and shut the door as quietly as possible, and took his seat in the gloom.

The engine whistled, there was a cry of "Right forward!" and they were off.

Presently he saw the woman stand up in her compartment and peep over into the gloom.

"Not a blessed soul," he heard her mutter; "and yet I feel as though that devil Billy was creeping about after me. Ugh! it must be the horrors. I can see the look he gave me now."

A few minutes later the train stopped at a station, but nobody got in, and presently it moved on again. "Any passengers for Effry?" shouted the porter, and there had been no response. If they did not stop at Effry, there would be no halt for forty minutes. Now was his time. He waited a little, till they had got up the speed. The line here ran through miles and miles of fen country, more or less drained by dikes and rivers, but still wild and desolate enough. Over this great flat the storm was sweeping furiously, even drowning in its turmoil the noise of the travelling train.

Very quietly he rose and climbed over the low partition which separated his compartment from that in which the woman was. She was seated in the corner, her head back, so that the feeble light from the lamp fell on it, and her eyes were closed.

He slid himself along the seat till he was opposite her, and then he paused and looked at the fierce, wicked face on which drink and paint and years of evil thinking and living had left their marks, looked at the talon-like hands, the long yellowish teeth, the half-dyed hair hanging in tags beneath the gaudy bonnet of peacock feathers, and looking, shuddered. There was his bad genius; there was the creature who had driven him from evil to evil, and finally destroyed him. Had it not been for her he might have been a good and respected man, and not what he was now, a fraudulent, ruined outcast. All his life seemed to flash before his inner eye in those few seconds of contemplation, all the long weary years of struggle and crime and deceit. And this was the end of it, and *there* was the cause of it. Well, she should not escape him; he would be revenged upon her at last. There was nothing but death before *him;* she should die too.

He set his teeth, drew the loaded pistol from his pocket, cocked it, and lifted it to her breast.

What was the matter with the thing? He had never known the pull of a pistol to be so heavy before.

No, it was not *that.* He could not do it. He could not shoot a sleeping woman, devil though she was; he could not kill her in her sleep. His nature rose up against it.

He placed the pistol on his knee, and as he did so she opened her eyes. He saw the look of wonder gather in them and grow to a stare of agonized terror. Her face became rigid like a dead person's, and her lips opened to scream, but no sound came. She could only point to the pistol.

"Make a sound, and you are dead," he said, fiercely. "Not that it matters, though," he added, as he remembered that the scream must be loud which could be heard in that raging gale.

"What are you going to do?" she gasped at last. "What are you going to do with that pistol? And where do you come from?"

"I come out of the night," he answered, raising the weapon—"out of the night into which you are going."

"You are not going to kill me?" she moaned, turning up her ghastly face. "I can't die. I'm afraid to die. It will hurt, and I've been wicked. Oh! you are not going to kill me, are you?"

"Yes, I am going to kill you," he answered. "I told you months ago that I would kill you if you molested me. You have ruined me now. There is nothing but death left for me, and you shall die too, you fiend!"

"Oh, no! no! no! Anything but that. I was drunk when I did it. That man brought me there, and they had taken all my things, and I was starving;" and she glanced wildly round the empty carriage to see if help could be found, but there was none. She was alone with her fate.

She slipped down upon the floor of the carriage and clasped his knees. Writhing in her terror there upon the ground, in hoarse accents she begged and prayed for mercy.

"You used to kiss me," she said. "You cannot kill a woman you used to kiss years ago. Oh, spare me! spare me!"

He set his lips, and placed the muzzle of the pistol against her head, and at the contact she shivered, and her teeth began to chatter.

He could not do it. He must let her go, and leave her to her fate. After all, she could hurt him no more, for before another sun had set he would be beyond her reach.

His pistol hand fell against his side, and he looked down with loathing not unmixed with pity at the abject human snake who was writhing at his feet.

She caught his eye, and her faculties, sharpened by the imminent peril, read relentment there. For the moment, at any rate, he was softened. If she could master him now while he was off his guard—he was not a very strong man. But the pistol—

Slowly, still groaning out supplications, she rose to her feet.

"Yes," he said, "be quiet while I think if I can spare you," and he half turned his head away from her. And for a moment nothing was heard but the rush of the gale and the roll of the wheels running over and under bridges.

This was her opportunity. All her natural ferocity arose within her, intensified a hundred times by the instinct of self-protection. With a sudden blow she struck the pistol from his hand, and it fell upon the floor of the carriage. And then, with a frightful yell, she sprang like a wild-cat straight at his throat. So sudden was the attack that the long, lean hands were gripping his windpipe before he knew that it had been made. Back she bore him, though he seized her round the waist. She was the heavier of the two, and, *crash!* they went against the carriage door.

It gave! Oh God, the worn catch gave! Out together, out with a yell of despair into the night and the raging gale, down together through sixty feet of space into the black river beneath. Down together, deep into the watery depths—down into the abyss of Death.

The train rushed on, the wild winds blew, and the night was as the night had been. But there in the black water, though there was never a star to see them, there, locked together in death as they had been locked together in life, the fierce glare of hate and terror yet staring from their glazed eyes, two bodies rolled over and over as they sped silently toward the sea.

[TO BE CONTINUED.]

WHITE HOUSE RECEPTIONS.

There was never a more republican court than that which Mr. Cleveland holds every day when he is at home in the White House. Mr. Hayes introduced the fashion of giving frequent public receptions, but his important gatherings were held in the evening, and the Executive Mansion was thrown open to any one who might see fit to avail himself or herself of the opportunity. The assemblages were mixed. Those of the fashionable world who were present were persons who had favors to ask of the President. They were very likely the friends or families of army or navy officers who sought change of duty, or something pleasanter than they were then engaged in doing. For the rest of the company, it was composed of people who had never another opportunity for seeing the great house lighted up, and who gladly availed themselves of the occasion to be momentarily on equal social terms with the President and Mrs. Hayes. It was always a pushing, unpleasant crowd, good-natured, as American crowds usually are, but beyond that having no opportunity to display any quality but that of bad manners. Dresses were torn, fans were broken, hats were crushed, women fainted, and very few of the great numbers who pushed their way into the White House shook hands with the President, or even saw him. Those who did went away happy, and spread abroad a pleasant impression of the Chief Executive of the nation. The mistake of the evening assemblies was that they partook of social affairs without having the essential element of selection. The President did not choose his guests, and therefore they were not likely to be congenial. One of the evil results of the custom was felt when Mr. Hayes gave a diplomatic reception, for which he issued cards. The public had grown so accustomed to go to the evening entertainments of the White House that they rushed to this, and the diplomatic representatives of foreign courts had the satisfaction of seeing their supper devoured as they helplessly looked on over the heads and shoulders of the populace.

Mr. Hayes permitted the people to come very near him, and nearly every day visitors who were mere sight-seers intruded upon his business hours. He saw them in the Cabinet Room, and found it nearly impossible to dismiss them. Mr. Arthur adopted another practice. He was more secluded than Mr. Hayes; but he came down into the East Room at noon, except on cabinet days, and saw all who came. It is this habit which Mr. Cleveland has adopted, and which Mr. Renouard has illustrated. The present Executive is very jealous of his working hours. On one day of the week he denies himself to everybody. Then the White House is really in the possession of the man for whose residence it is intended. Even a Congressman with a post-office fight in his district cannot see the President on that day. But on other days the public sweeps through the chief rooms of its own Executive Mansion. The people are shown through the house by Mr. Pendell, a door-keeper who was in place when Mr. Lincoln was President, who opened the door for him when he went to the theatre on the fatal night, and for his corpse when it was brought back; who again opened the door for Garfield as he passed out to his death, and received him wounded on his return.

When the people have looked all through the great rooms, and have studied the pattern of the carpet in the Blue Room, where the President and the receiving party stand when great social events occur, every one goes to the East Room, the big state apartment, painted and gilded, but sparsely furnished, and there they wait for the President. Mr. Cleveland sees at this time those who have no business with him. No President was ever more approachable, but he insists that each visitor shall come at the proper time. The man of affairs can always have an appointment with him, but no one on the score of old acquaintance can safely break in upon the business hour with a social call. The President does not hesitate to tell such a one that he ought to know better than to rob him of the time devoted to the performance of public duties. For all social calls that are not for Mrs. Cleveland the President sets apart what time is necessary in the middle of the day.

Then every one is welcome. The old man who has brought his granddaughter on a trip to the capital sees a President for the first time in his long life, and drinks in the delights of observing everything that is done by the head of the nation—every motion, every look, and every word. There is already on his face the sunshine of expectancy. He knows what an important place his reminiscences of the White House and his recollections of the President he had seen will hold in the family circle and the country store, and at home there will always be the pretty granddaughter to appeal to for confirmation of the grandfather's tales. The child shakes hands with the President in order that she may always be able to say that she had done it when Grover Cleveland was on the throne. The farmer, the dapper city clerk, the tourist—all go to the noonday receptions to look upon the Chief Magistrate and to touch his hand. Even the brides and grooms who go to Washington in shoals, and whose constant effort it is to look like old married folk, forget their disguise and go to visit the President, who with the skill and omniscience of his own recent experience is sure to detect them, and to reveal their secret to whoever is near enough to hear him. There are no people so humble that they do not feel privileged to attend these receptions. When Mrs. McElroy, President Arthur's sister, undertook to relieve her brother of a part of a disagreeable task by her Saturday afternoon receptions for women, the servant-girls of the capital made it a point to be present; and so at Mr. Cleveland's daily hand-shaking we will find all classes and conditions of men and women, and doubtless the President often finds that the little reception makes an agreeable break in his busy day, for such an episode as that which is represented in the illustration is always pleasant to him. It seems as though the people insisted on their right to see their chief butler a good deal more than is considerate, but, after all, it is more in the seeming than the reality. Very few comparatively go to Washington, but the tales they carry home of the pleasant greeting which they received at the White House make the President a wholesome and agreeable personality—one with whom the whole country seems to be in touch.

THE RICHMOND EXPOSITION.

If the man who talks benignly of the gratifying cessation of the war spirit wishes to learn how greatly public sentiment has outgrown him, he should make a visit to the Exposition at Richmond, which is just now the show place of old Virginia and its neighboring States. The visitor will find that, except as a historical event, the war has been forgotten. It has no place now in the commercial transactions or the industrial progress of either the North or the South. Even in social matters the events of the great struggle are losing much of their overshadowing influence.

How completely the best elements of the country's population have abandoned the war to history is shown in Richmond this month. Sectional feelings or bitter reminiscences are unknown at the great Exposition. It is by no means a local Exposition, nor yet is it sectional; it belongs to the entire country. While the Exposition naturally represents Virginia more fully than it does New York or Ohio, yet it is at the same time so eminently national in character that New York and the North have as much reason to be proud of it as Richmond and the South necessarily are.

The directors had the national character of the Exposition in view from the start. The main building of the Virginia State Agricultural Society, on the grounds of which the Exposition is held, was found to be so small, in comparison with the requirements of the new arrangement, that it was put into use merely as a restaurant. The new Main Building of the Exposition was built with a frontage of 650 feet and a depth of 340 feet. A large wing stretches back from each end and from the centre of the building, the whole structure thus forming a huge letter **E**. The total space for exhibition purposes is about 350,000 square feet. Virginia alone could have filled this space had she been so disposed, but she let North Carolina and the rest of her neighbors have a liberal chance to show what they could produce in the way of natural and industrial wealth. North Carolina especially improved her opportunity. So excellent a showing did she make on the opening day that she almost surpassed Virginia herself in the quality and completeness of her display.

It would be hard to say which is the most interesting feature of the Exposition. Probably the tobacco display best deserves that distinction, as the tobacco industry is the most interesting to Northern visitors, and also the most representative of Virginia's many resources. Nothing could be more comprehensive than the tobacco display. Tobacco is shown growing in the field, where the insects that destroy it may be seen eating the leaf; the plantation negro can be found singing at his work while he cultivates the plant, strings it upon long sticks in a tobacco barn, or manipulates it at his own home; farther along, the men and girls of the manufactory roll cigars and cigarettes, and machines make up other forms of tobacco for domestic and foreign use.

Virginia makes a great showing in the matter of manufactured goods. The products of her iron-mills challenge comparison with Pennsylvania. There is no end of machinery, from engines, mill supplies, mowers, reapers, threshers, textile machines, dynamos, looms, and printing-presses, down to corn-shellers, apple-parers, and egg-beaters. One gets the impression from this display that Virginia could, if brought to the verge of such an emergency, supply the greater part of the country with iron articles.

Of hardly less interest than the tobacco display is the State exhibit of Virginia. In this matter the people of the different counties have taken pride in showing the visitor creditable specimens of all the natural products of the State. Mines, marl beds, forests, lumber-mills, stone and granite quarries, tanneries, and manufactories have combined to prove that Virginia is an excellent place for the investment of Northern capital. As for the agricultural display, only the prolific West could hope to rival it. To say nothing of tobacco, which is by far the largest crop of the State, there are cereals, vegetables, and fruits that tend to show that Virginia can grow in rich profusion not only everything needed for local use, but also a large variety of things for export. In agriculture Virginia has the advantage of being able to raise almost everything that the Northern States produce, and a great deal more in addition. Persons engaged in the cultivation of the soil find the cottage of cereals and the objects made entirely of tobacco of special interest.

It must not be supposed that the agricultural, mechanical, and tobacco exhibits monopolize all of the space or all of the interest at the Exposition. The art department claims a good share of attention by reason of the high merit and variety of the display. A large painting of Grant and his Generals is one of the chief features of the exhibit. Equally interesting from a historical point of view is the department of colonial relics and antiquities, into which Virginia has poured heirlooms that are never allowed to get beyond the borders of the Old Dominion. What is left of Old Sorrel, "Stonewall" Jackson's war-horse, stands side by side with the trunk of a tree split by a cannon-ball from Fredericksburg, while grouped around are many relics of the rebellion. Perhaps the most conspicuous relic of the war within sight of the Exposition is one of the redoubts used in the defence of Richmond during the war. It stands in front of the Main Building, some distance back from the busy part of the grounds. Northern visitors have made it a favorite resort during pleasant days.

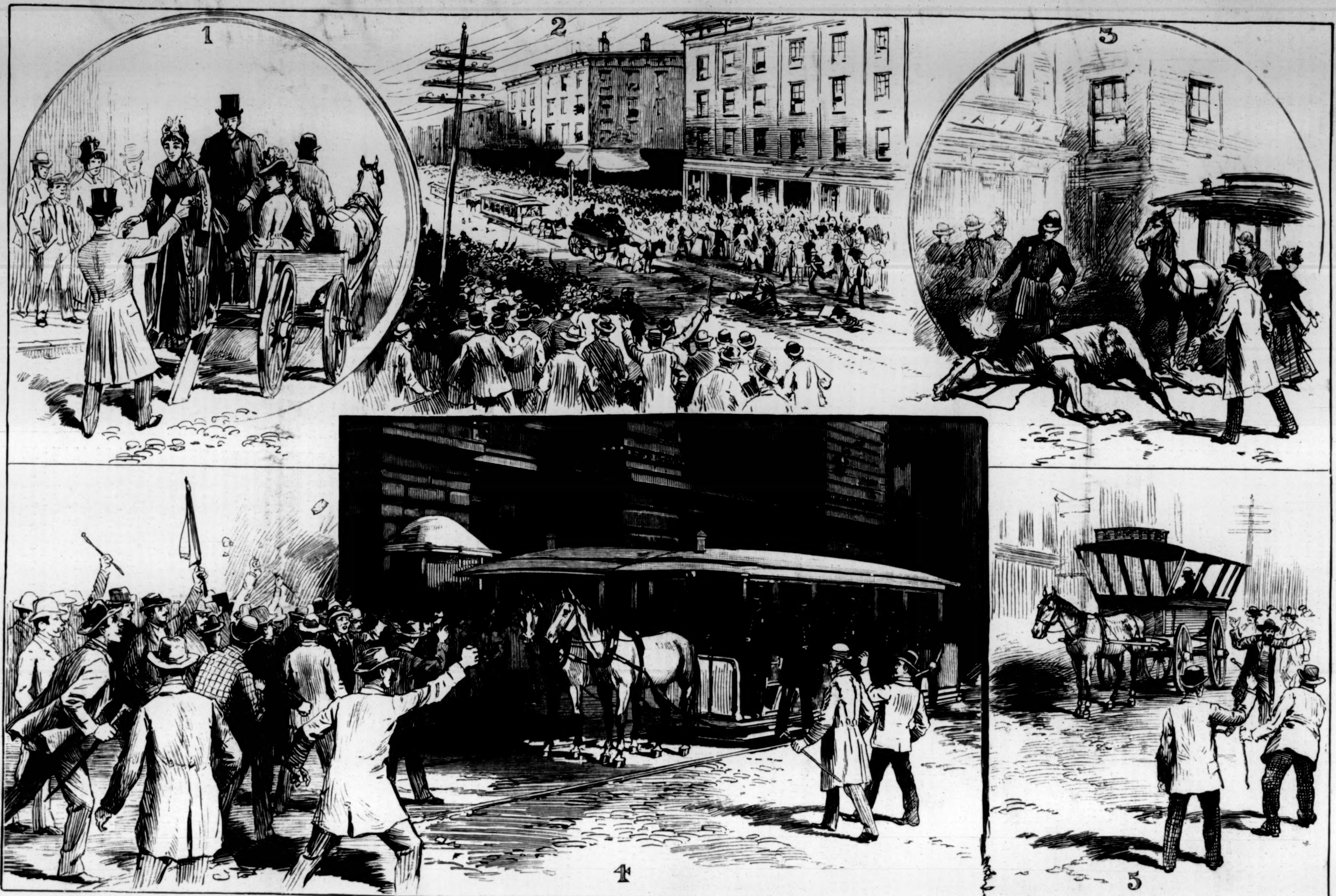
Aside from the agricultural and other displays in the Main Building there are exhibits of horses, cattle, sheep, dogs, and poultry which are of unusual interest. The dog exhibit, or bench show, is particularly complete and attractive. About five hundred dogs are on show. They come from all parts of the country, many being from New York, Massachusetts, and Pennsylvania. A number of persons went to Richmond from New York city just to attend the bench show. Others went to join in the fox-hunts, which form exciting diversions from the daily routine of the Exposition. Plenty of red foxes give the rough-riders of Virginia a chance to test their horses against the trained thorough-breds from New Jersey and Long Island. It must be acknowledged that in this matter of fox-hunting the Virginian has the advantage of the New-Yorker. He is more accustomed to country riding, and he has more chance to practise with wild foxes. However, the New York riders were fully capable of taking care of themselves, even in a wild dash across country.

Another form of amusement and entertainment to those visitors who can appreciate a good horse when they see one is provided at the race track, where trials of speed are held during the Exposition. Sufficiently valuable prizes are offered to engage some fast animals in the contests. The running races will be followed by special trotting races from October 16th to 20th.

To those who tire of walking about the Main Building and other exhibition halls the concerts in the large Music Hall are entertaining and instructive. There are three thousand separate chairs facing the music stand, and so excellent are the concerts they are nearly all filled at each performance. Exhibition managers have found that good music draws as well as the regular exhibits do.

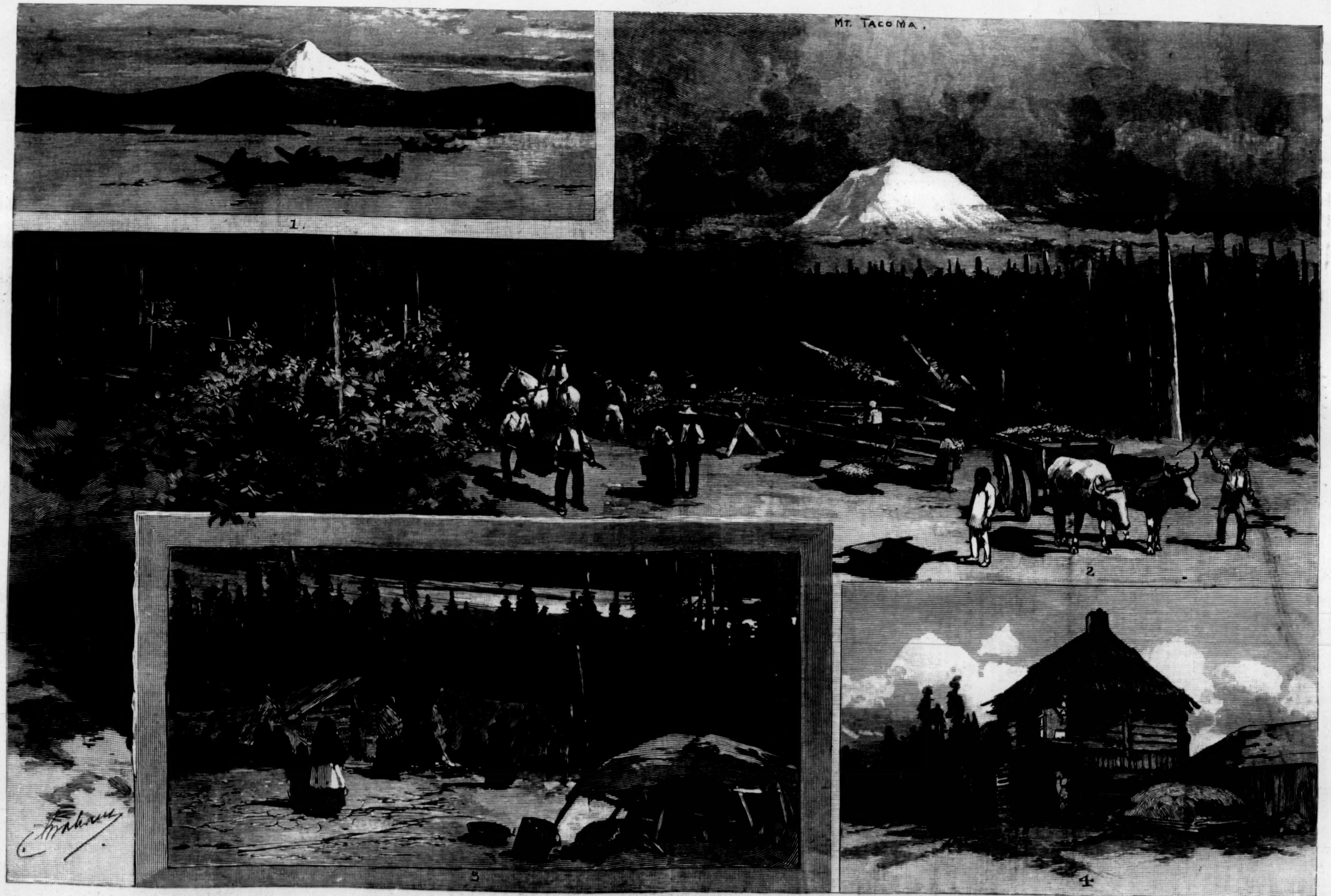
The Richmond people have taken a great deal of just pride in this Exposition, both in the way of providing exhibits and in the more commonplace but equally important matter of attending to the wants of visitors. Strangers in Richmond find a cordial welcome. They are made to feel as thoroughly at home as the rush and bustle of the occasion will allow. The Northern man will at once realize that Virginians are, first and above all, Americans. He will hear nothing at all about the war unless he himself introduces the subject. Even then he will have to do most of the talking, for I believe the average Virginian has grown weary of reiterating, year after year, the self-evident fact that the war is over. If there still exists a lingering doubt in the minds of any of the Northern visitors that hostilities have not wholly ceased, this great Exposition ought to forever set the question at rest. Certainly any observing man will see that this is Virginia's effort to attract new citizens and additional capital. If Virginia was at all influenced by the old war spirit she would not now advertise her resources and invite the investment of Northern capital. Virginia has great natural wealth as yet untouched by man. If the Northern man of means will lay aside his prejudice and shut his ears to the ravings of political demagogues, he will find Virginia a prolific field for new and profitable enterprises. If he doubts this let him study carefully the Richmond Exposition, which is a practical prophecy of the time when there will be no South except the south of the geographer.

William Willard Howard.



SCENES DURING THE STREET-CAR STRIKE AT CHICAGO.—From Sketches by Walter Burridge.—[See Page 802.]

1. Improvised Stages. 2 Riot Scene on North Clark Street and Indiana Avenue. 3. Shooting Horses fatally Lamed by "Green" Hands. 4. Police protecting Cars at Court-House. 5. "Ten Cents all way up."



A PUYALLUP HOP RANCH NEAR TACOMA, WASHINGTON TERRITORY.—Drawn by Charles Graham.—[See Page 799.]

1. Indians on the way to the Ranch. 2. The Hop Field. 3. The Hop-Pickers' Camp. 4. A Hop House.

THE CHICAGO STRIKE.

At six o'clock on Saturday morning, October 6th, the conductors, drivers, and "cable-grip" men of the North Side horse-car and traction lines in Chicago went on a strike. These lines are owned by a company of which Mr. YERKES is president, some of whose stockholders are interested in Philadelphia, Pittsburgh and New York lines, while in Chicago it also controls the cars on the West Side. The strikers complained that they received less wages from the company than its West Side men, and that their hours off duty were so divided as to give them insufficient sleep. These and other complaints had been laid before Mr. YERKES, who declined to make the desired changes.

The first disclosure was that both sides had prepared for the contest. The men had got together all sorts of wagons for carrying passengers, although these accommodations proved insufficient, and thousands had to walk. The company, on its part, already had men on the way from Philadelphia, Kansas City, and elsewhere; but while some horse-cars were run on Monday, the new-comers were far from being enough to restore the full service. Meanwhile, the West Side men had voted sympathy, although making no complaint of their own treatment. The North Side men, in a conference held at Mayor ROCHE'S office, made proposals for wages on the West Side basis of twenty-five cents an hour on grip cars, twenty-three cents on "trailers," or those attached to grip cars, and twenty-one cents on horse-cars. The company offered less on each of these classes, and also declined to discharge the new men just engaged, and accordingly on Tuesday the West Side men went out.

The situation was now serious. Instead of 500 men on strike there were 2000, and a large area of the city was without cars. The feeling became bitter, and all the available police force watched the company's property. Stones, earth, boxes, barrels, and what not were dumped on the tracks, and switches were misplaced and spiked. Nevertheless, guarded by police, a few cars were run that afternoon in spite of the dense mobs that attacked them with sticks and stones. In the neighborhood of Garfield Avenue and Orchard Street the police charged the crowd, and many persons were clubbed. At the Western Avenue barns the cars were assailed with stones, and Superintendent NAGLE, who drove one, was knocked down by a man whom the police felled in turn, and carried off after a sharp struggle.

The worst outbreak occurred on Wednesday. Police had been massed at the barns, or stationed in squads of four at the street corners, or hurried hither and thither in crowded patrol wagons. In the afternoon two car superintendents emerged in a vehicle from the barn on Western Avenue, near Park Avenue. Stones and sticks greeted them from the howling crowd. The horse dashed across Madison Street, and the superintendents fired their revolvers. A policeman followed and arrested them for this firing. About four o'clock a car was started on Madison Street with police on the platforms. Again the air was alive with missiles, and Lieutenant SHEA, heading a large police force, charged the mob. Many of his men were struck, and Captain ALDRICH, who directed the attack from his buggy, was severely hurt. The police did great execution with their clubs, but though sorely tried, refrained from using their drawn revolvers. At Oakley Avenue the car was again attacked, but the police dispersed the crowd with a club charge. The car finished its route and returned to the barn. It was the only one moved on the West Side that day, and it is said that the driver was promised and promptly received a large reward for his perilous journey, which cost him severe bruises. On the North Side more cars were run; but a gang of laborers on the Garfield Avenue track, near Indiana Street, was attacked while removing obstacles, and several were injured. The police charged the mob with clubs, and many of the rioters were carried into the drug stores to have their scalp wounds dressed. A big bag of flour or of plaster of Paris thrown from near the top of a building caused a general scattering by its noise and dust, it being taken for a bomb. At one point two tar barrels were blazing on the track, and other bonfires were lighted at night, and crowds tore up the tracks. A conference of the Mayor, Mr. YERKES, and the strikers led to no agreement.

On Thursday two cars, with policemen and reporters as passengers, moved on the West Side through dense mobs which filled Madison Street for two miles. At two points only were the police compelled to charge the mob. An omnibus containing new men was attacked, amidst cries of "Scabs," but the police dispersed the assailants. On the North Side more cars were run, being hauled on the pavements around stretches of broken track until rails were reached again. A few small railroad torpedoes were exploded on the track under one car, startling its occupants, but doing no harm, while a few missiles said to contain dynamite and others containing only plaster of Paris were found.

By Friday the service both on the West and North sides had become much more frequent. A chilly rain had diminished the number and dampened the ardor of the lookers-on, and disposed more people to risk a trip in the cars rather than walk. At night a new committee of strikers again proposed for the North Side men the West Side rates, the old men to be taken back, and the new men retained, but put at the foot of the list for duty. The West Side men having said that they struck because they feared reduction should the North Side men be beaten, Mr. YERKES declared that no reduction was thought of. As the result of this conference, the West Side men returned to work on Saturday morning, October 16th, and a conference was held with the North Side men, which is going on as our account closes.

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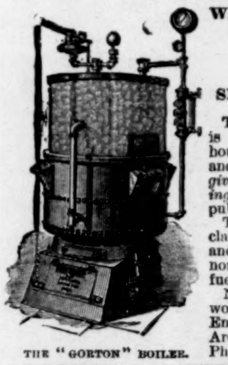

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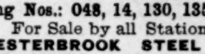

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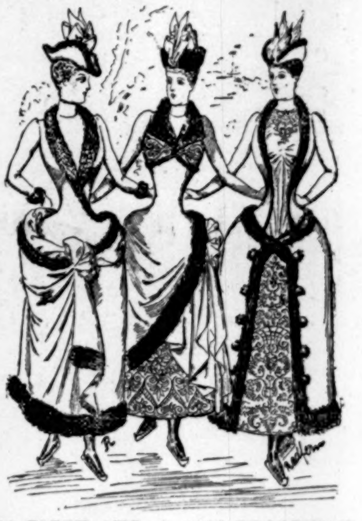

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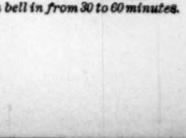

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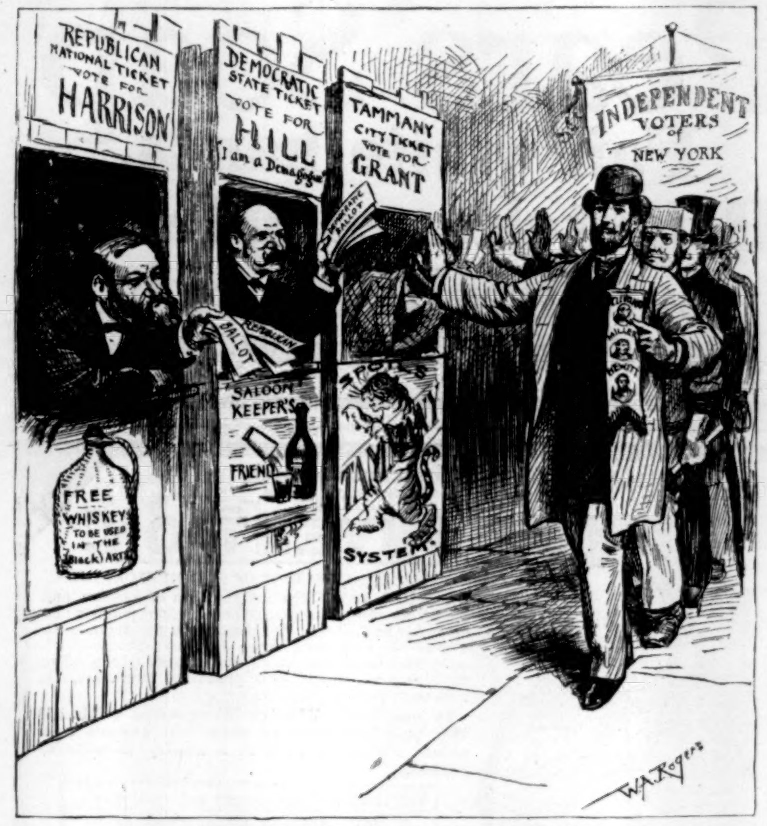
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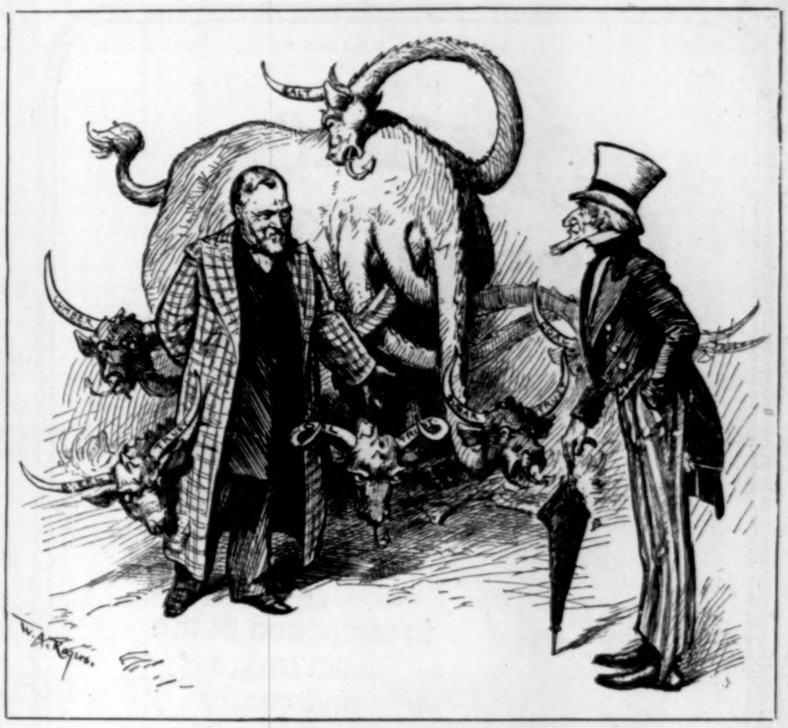

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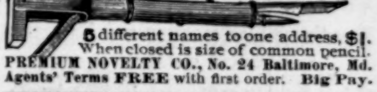
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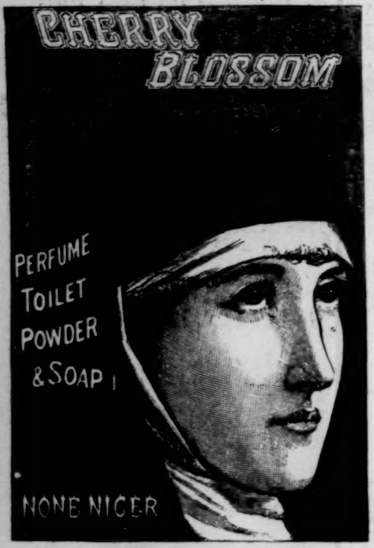

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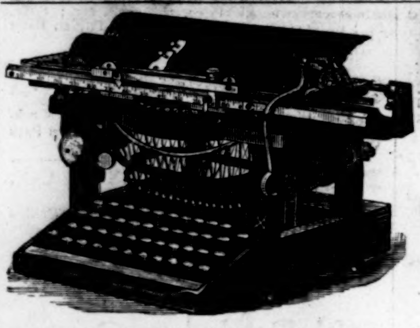

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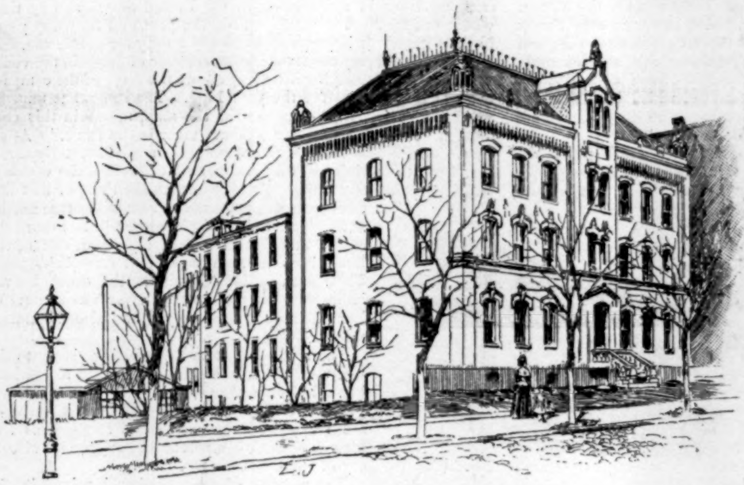
THE UNITED STATES COAST AND GEODETIC SURVEY.

By HENRY P. WELLS.

IN a quiet side street leading out from the Capitol grounds in Washington stand the buildings occupied by the United States Coast and Geodetic Survey. We venture to say that the intelligent American who visits those modest buildings and investigates the work that is doing and has been done therein will leave no other bureau of our national government with more satisfaction, or with greater pride in the honor which it reflects upon our country. He will find a body of scientists, each an enthusiast in his specialty, many of them as familiar by name to the learned of Europe as President **Cleveland** is familiar by name to us, and all laboring together, with that singleness of purpose which characterizes the true scientist, for one common end—the profit and advantage of their fellow-man.



UNITED STATES COAST AND GEODETIC SURVEY BUILDINGS AT WASHINGTON.

Honorable to our country as has been the career of this bureau in the estimation of foreign scientific men, beneficial as have been its labors to the people at large, except among navigators and a very few others its work is almost unknown.

Avoiding altogether the intricacies and technicalities of science, let us investigate some of the operations of this bureau.

Few there are of us who do not at some time intrust friends or property to the mercy of the sea. To the landsman our rivers and harbors, our estuaries and the great sea beyond, are but liquid plains reflecting more or less perfectly the sky above. To him what lies beneath the one is as obscure as that which lies beyond the other. To the mariner this must not be. Though that surface is as opaque to his direct vision as it is to that of the landsman, the safety of his vessel and all it contains depends upon his ability to see with his mental eye every feature of the subaqueous landscape. This the Coast Survey enables him to do by providing him with charts—maps from which all but a fringe of land is excluded, but which indicate every varied detail of the bottom of the water with absolute fidelity.

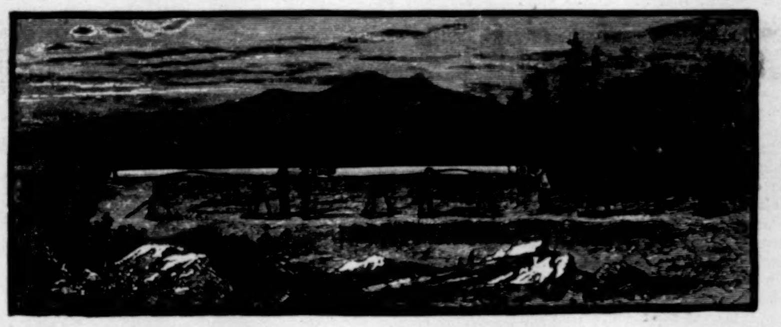
Let us see how the mass of information embodied in these charts is gathered and prepared for the safe guidance of the mariner. To those unfamiliar with the subject the process will not fail to be instructive. We hope to make it interesting as well.

First, the coast-line must be drawn, and accurately located with reference to the coasts of other lands; for clearly it would not do to lead the mariner to expect navigable water where he would actually find dry land. Nor can the distances from cape to cape be measured by surveyor's chain borne from object to object by hand, for the work would be interminable and its accuracy insufficient. The first thing, then, is to measure a "base-line," establish its direction with reference to a true north and south line, and determine the latitude and longitude of one of its ends.

It is a truth of mathematics that if one side and two angles of a triangle are known, the length of the other sides can be calculated with perfect accuracy. By the aid of this principle, and instruments of precision to measure the angles, the relative distances and positions of new points are determined. The distances so determined become new base-lines, and so the work of measurement and location goes on down the coast for hundreds and hundreds of miles.

Some idea of the accuracy with which this is done may be had from the following: A few years ago one base-line was measured near Baltimore. Another was measured near Atlanta, some 600 miles distant. Two independent parties triangulated toward one another. They met midway on a common line. Each party computed the length of this line from its own data. It was some 29½ miles long, yet the difference between them was but half an inch!

It may be asked, what is the practical use of all this accuracy?



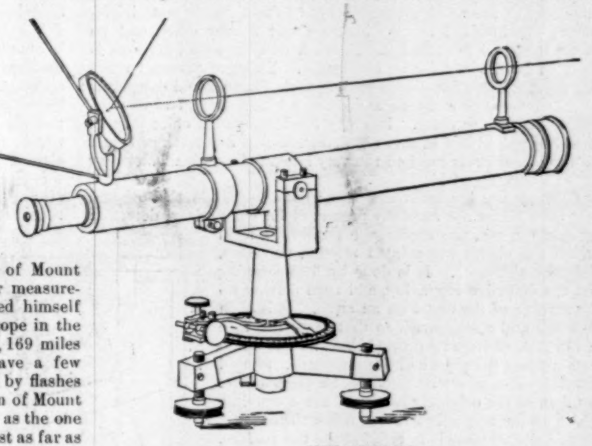
MEASURING A BASE-LINE.

Error, once admitted, increases and multiplies, until finally it may eventuate in so misplacing some outlying danger on the coast as to lure the mariner to death and destruction, instead of pointing out to him the path of safety. All that perfection of appliance and human skill can do should be done, and is done, to insure absolute correctness. In one typical case it was demonstrated that the accuracy of observation was such that if the signal $24\frac{3}{10}$ miles distant had been a target, the line of observation would have passed but one half-inch from its mathematical centre. Angles are measured to the tenth of a second on a circle of 360 degrees. A mean error of one second is permissible in the best quality of this work. The recent work of the Coast Survey has shown a mean error of only $\frac{51}{100}$ of a second, equivalent to less than $\frac{1}{10}$ of an inch of error in a circle a mile in diameter. The very best European work shows a mean error of from $\frac{59}{100}$ to $\frac{70}{100}$ of a second.

Economy and accuracy both require that in the main system of triangulation the lines should be as long as possible. The largest triangle ever measured was by the Coast Survey in California. Ignoring fractions, its sides were respectively 133, 167, 190 miles in length. The largest similar line ever observed abroad was that connecting Spain and Algiers, 168 miles. An entire season was spent in preparation for this work under a colonel of France and a general of Spain. Their party consisted of some one hundred persons, besides laborers obtained in the neighborhood. They operated in an inhabited country. Our Coast Survey spent a little over a month in preparation for their great work in California. Its parties consisted of from four to ten men. It operated in an almost inaccessible wilderness amid perpetual snow. Their longest line was 168 miles; ours was 190 miles. The area of their largest triangle was 5376 square miles; ours was 10,850 square miles. The largest tract enclosed within their lines was 8701 square miles; ours was 21,000 square miles. If we compare the cost of the two operations, the contrast is still more strikingly in our favor, while their work was only about two-thirds as accurate as ours. For his share in it the French colonel was promoted in rank, received a higher decoration in the Legion of Honor, and was made a member of the Institute of France. The greater work of our Coast Survey is almost unknown except to the specialist.

What signal can man erect that can be seen at such great distances? It is the flashing of a little mirror, about four inches in diameter, called a "heliotrope." Formerly this mirror was moved by a mass of clock-work, which required the constant attention of a skilled mechanic to keep in working order. Yankee ingenuity is abundant in the Coast Survey. In the hands of its officers the heliotrope became two brass rings and a four-inch mirror set on top of a telescope, the mirror with a swivel joint. This simple affair costs not a tenth of the old heliotrope, is very much more portable, is never out of order, works just as well or better, and can be managed by any man of average intelligence with very little instruction.

Mr. B. A. **Colonna**, now second in charge of the administration of the Coast Survey, thus described the action of this instrument from the top of Mount Shasta when the great California triangle was under measurement. He had just, with infinite difficulty, established himself on the summit of the mountain. "I turned my telescope in the direction of Mount Lola, and there was the heliotrope, 169 miles off, shining like a star of the first magnitude. I gave a few flashes from my own, and they were answered at once by flashes from Lola. Then turning my telescope in the direction of Mount Helena, there too was the heliotrope shining as prettily as the one at Lola." Mount Helena was 190 miles distant—almost as far as Boston is from New York.



HELIOTROPE.

To obtain these long sights, the observers and the heliotropes must both be well up in the air, or the curvature of the earth would place each party below the horizon of the other. The tops of the highest mountains are occupied, and on those barren summits, exposed to the most cruel hardships and privations of every kind, the officers of the Coast Survey remain for days.

The field life of a member of the Coast Survey is by no means a bed of roses. Listen to the recent experience of Sub-Assistant F. A. **Welker**. Conness Peak is about 13,000 feet high, and lies in the wilderness some seventeen miles beyond the Yosemite Valley. Its base can be reached only with the aid of a guide. In the course of the work it became necessary to establish a heliotrope on its summit. Mules were available to within one and a half miles of the peak and 1800 feet below its top. From there everything had to be carried by hand. Before one-third of the remaining distance was passed, one of the heliotropers was so overcome as to be incapacitated. The guide took his load, and the diminished party faced the steep ascent, their way almost insurmountable by reason of snow, ice, and riven crags. For some 500 yards from the summit the mountain was almost perpendicular, the precipices falling sheer to a depth of from 1500 to 2000 feet. One narrow ridge of shattered rock, in places not more than three feet wide, crossed the chasm. It was possible, but how perilous! The slightest misstep would land those who braved it on the rocks nearly 2000 feet below.

At this point the guide gave up. The appalling depth and the frail bridge by which it must be passed made him so giddy that he dared not venture further. He was left behind. **Welker** and one heliotroper alone of the party at last reached the summit. Leaving the heliotroper there, **Welker** was forced to return, hire another heliotroper, climb the peak again, establish them both in camp, and train their heliotrope upon Mount Macho, 128 miles distant in an air line. **Welker** then set out for Round-Top Mountain on the same errand. Less than a fortnight of freezing nights, storms, exposure, and solitude was a dose. By September 1st all the heliotropers on both mountains had deserted their stations, and the same adventurous and laborious process had to be repeated with new men.

But let us return to the progress of the survey. After some hundreds of miles of territory have been gone over, and hundreds of angles have been observed and hundreds of computations made, a new base-line is accurately measured, called a "verification base." Then the length of this verification base is computed from the work already done. In this computation are bound up all the errors that have entered into the work up to that point. A comparison of the actual length of this line with its computed length at once discloses the quality of the work.

When the inequalities of the ground over which the measurement is made are taken into consideration, the accuracy with which the length of a base-line is determined is almost incredible. The "Yolo Base-Line," near Sacramento, California, was measured in 1881. Calling the line eleven miles long, the whole probable error falls within one-third of an inch. It is really amusing to see the enthusiasm that the words "Yolo Base-Line" will excite in a member of the Coast Survey. They are one and all very proud of it, as well they may be, for such work was never done before.

One other feature of this branch, and we must leave it, superficial and inadequate as we have been.

The maps of many of our States have grown up in the following manner: Private property is surveyed. From these surveys town maps are made, from them county maps, and from them State maps. They bristle with errors. Frequently they are several miles out. One single example of many must suffice. Between the land maps of Missouri and Illinois the Mississippi River appears at times as wide lakes, and at times vanishes altogether. How fruitful this must be of controversy as to the ownership of land is apparent. The Coast Survey, with such celerity as a somewhat meagre annual appropriation will permit, is running a system of triangulation from the Atlantic to the Pacific. One of its objects is to furnish each State with a skeleton of accurately located points and correctly measured distances, upon which it can build as it sees fit.

At length the geodetic work of some part of the coast is finished, and the shore-line is correctly mapped. Let us, for example, assume that it includes some important harbor—Narragansett Bay, for instance. The shore-line is drawn on the scale of $\frac{1}{10000}$, or about six inches on the drawing represent one mile. Provided with this sheet, the hydrographic party occupies the bay, and crosses and recrosses it in every direction with lines of soundings. Every rock and shoal is hunted out, and data are obtained from which they and the depths of water at average low tide can be entered in their proper places on the sheet. The work proves itself. The intersection of different lines occurs on almost every square inch of the sheet. Each line of sounding is computed separately, so that the depth of water at these intersections is determined several times. If they all agree, the work is good; if not, the soundings must be repeated.

The sheet is afterward redrawn; in the case assumed, each mile is a little less than an inch long. On this new drawing all the dangers are entered, but only the characteristic soundings. For if over large areas an even bottom at say ten fathoms is found, an

A BASE-LINE.

occasional figure 10 gives all the information. Great judgment and skill are requisite that no useful detail be omitted on the one hand, while on the other the drawing is not made obscure by needless repetition. This done, the original sheet, bearing the signature and approval of every officer who has had a hand in its production, is filed away in the archives of the bureau. Not a single mark is permitted on any chart of the Coast Survey the authority and responsibility for which cannot be fixed at a moment's notice.

The new drawing is then traced on another paper with a peculiar ink. A plate of copper is then provided, except in point of size and thickness, exactly like a visiting-card plate. The polished surface of the copper is covered with a solution of wax in turpentine, the tracing is inverted upon it and rubbed, and upon removal of the tracing every line is found printed on the copper plate just as it is to be engraved. The engraving is like that on a visiting-card plate, all lines being below the surface.

The engraving completed, a proof is taken. This proof is examined and proved by every officer who has had to do with the production of the drawing. Every mistake in his department must be indicated, and he must certify upon its margin in writing that there are no others. On the chart of Delaware Bay are 18,000 figures of soundings. Every one of these is verified individually. The plate is then corrected and a new proof struck off. The same routine of verification is had, and if no further errors are found, an edition of seventy-five copies, and no more, is struck off for immediate use. All subsequent copies are printed from an electro-plate duplicate of the original plate.

The mechanical and artistic work on these charts is simply superb—we have already spoken of the intellectual work they embody. The writer has compared them with English, French, German, Dutch, Spanish, and Italian charts, and they are almost as superior in execution to the best as the mechanical execution of a greenback was superior to that of a Confederate note.

What is the use of all this perfection? Why would not a good photo-lithograph answer just as well? They are for practical use, not for specimens of the fine arts. The answer is simple and conclusive. The navigator cannot spread out his charts on a broad table under the blaze of any desired number of gas jets. One feeble oil lamp, necessarily fixed in position, swings to and fro overhead, throwing first a beam of light and then a wave of gloom over the sheet as his vessel reels upon the heaving sea. Even in the daylight, especially in bad weather, when the chart is most eagerly consulted, his stuffy little cabin is dim and obscure. The very best of work is requisite to make the chart legible under the circumstances in which it is to be used. The very fact that they are for practical use necessitates this perfection of execution.

Every day notices come into the Coast Survey office of alterations in light-houses and buoys, of the formation and disappearance of shoals, and of changes in navigable channels. At once a memorandum is sent to the chart-room, and from that moment no remaining copy of the chart of that locality leaves the office until it has been corrected by hand. But the Coast Survey thinks it still owes the duty to those who already have its charts of advising them that correction is required. Notices of such changes are at once sent to the newspapers. A list of those whose material interests are involved is kept in the Coast Survey office, and no pains is spared to extend it. A stock of addressed envelopes is kept on hand ready for an emergency. To every person on this list a bulletin specifically describing these changes and dangers is sent at least once a month, and oftener if necessary, free of trouble or expense to them. In every foreign consul's office may be found complete files of these bulletins, so that any mariner bound to any of our ports can find the very latest information which may affect the safety of his vessel.

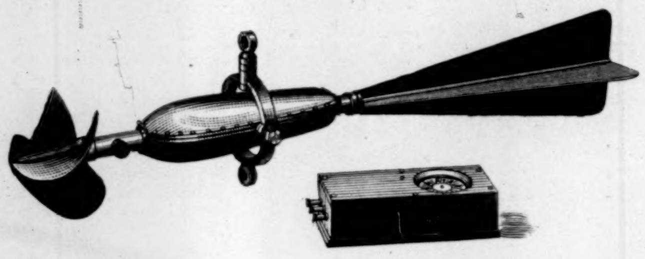
Changes are incessant along our coasts. While the original engraved plates are carefully preserved for comparison, detection of changes, etc., the electrotype duplicates from which the charts are printed require, therefore, constant alteration. It is done by first scraping out the defective engraving, and then driving up the surface of the metal on an anvil. It is then polished and re-engraved, so that from the face of the plate or from its printed sheet no one would ever suppose the plate had been changed. Should extensive alterations be required, an electro-plate is taken of the original plate. All the engraving, which on the original plate was below the surface, on this electro-plate is in relief above the surface. The surface of this electro-plate, called an "alto," is levelled and polished where alterations are required. An electro-plate from this "alto," called a "basso," consequently exactly reproduces the original plate, except where the alterations are required. There it is blank, ready for the engraver.

The ingenuity of the attachés of the Coast Survey is marked. In the basement of its building may be seen an aggregation of polished steel and brass enclosed in a case of mahogany and glass. There are more brains in this machine than would suffice to furnish the population of a small town of ordinary men. The mathematical formulas which entered into its construction look as though a few Christian figures and letters had fallen into bad habits by associating with many old heathen alphabets and cabalistic signs, and that streaks of straight and curved lightning were pursuing them in judgment for their sin. Page after page full of this sort of thing was necessary to plan the machine, all about as intelligible to him who has not been accustomed to soar in the mathematical empyrean as the inscriptions on the stones of Nineveh. It is a machine for predicting tides. Whether a tide is well-mannered and decorous, like those of our Atlantic seaboard, or whether it manifests all the apparent vagaries of the tides of our Pacific coast—where the first high tide in a day may be ten feet higher than the succeeding high tide, and the next high tide following may be higher than the first, and so on—no matter how erratic a tide may be, it is all one to this machine. Set the machine for a given locality, and put before it any man who has sense enough to turn a crank and copy figures on a prepared form, and it will grind out accurate tide tables for that place for fifty years to come, if desired. Twenty trained computers doing their best could hardly do the work of this one machine. With its assistance the Coast Survey issues tide tables for each of our principal ports a year in advance of the event. The importance of this is manifest, since by reference to them a mariner can tell whether he may enter a port in safety or whether he must wait for the tide to rise, and how long his detention will last.

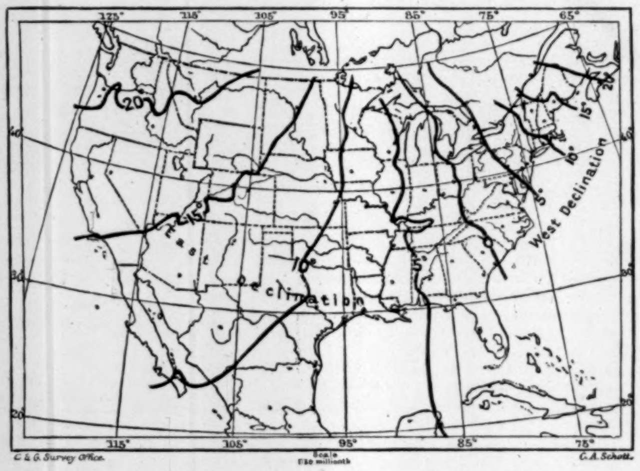
Another interesting feature of the work is the observation and study of currents in relation to channel-scouring, shoal-building, and the like, under the immediate supervision of Professor **Henry Mitchell**, a veteran assistant in the Coast Survey, and at the same time one of the Mississippi River Commission. Few indeed are the men who are engaged in our foreign trade, whether as merchants or sailors, who are not indebted to Professor **Mitchell**. Again and again has his wise counsel prevented irreparable damage to our ports. Take a case in point. Some time before the Brooklyn Bridge was projected it was proposed to close East River by a broad dike, and thus unite New York and Brooklyn. The New York Chamber of Commerce, wise in its generation, submitted the matter to the Coast Survey. Professor **Mitchell** informed them that if this were done the depth on the bar at Sandy Hook would diminish some four feet. The project was abandoned in consequence. The damage which would have resulted to the prosperity of New York and the adjacent cities in one year, from such a mistake, would have exceeded the entire cost of the Coast Survey from its inception to the present day.

Professor **Mitchell** answered this question as he did on theoretical grounds. The entrance to New York Bay is but an inlet, a break in the littoral cordon which reaches from the end of Long Island down to Florida, and of which Coney Island and Sandy Hook are dry parts. Why is it that that entrance has and maintains a depth almost unique among such harbors the world over? Why is it that New York Harbor is prone to remain open to commerce when harbors far to the south of it are closed by ice? If the rivers which flow into it were the only scouring cause, New York would be a barred harbor with comparatively little water on the bar. Rivers aid little in this work. The lighter fresh-water flows over the denser salt-water, and does not reach to the bottom. It is like trying to dig a hole in the ground by shovelling in the air. The heavier salt-water is the shovel that reaches the bottom and does the work. More salt-water must pass out over Sandy Hook bar on the ebb-tide than entered it on the flood-tide, and from Long Island Sound through East River this surplus must come. It is the low freezing-point of this excess of salt-water, and the rapid change of water it produces, which kept the port from being closed by ice. What an escape was it that that dike between New York and Brooklyn was not built!

Not very long since one of the employés in his field party, Mr. **Eugene E. Haskell**, invented, in conjunction with Mr. **Edward S. Ritchie**, of compass fame, a wonderful machine. It could be placed in any reasonable depth of water, and would record at any place with which it was connected the exact velocity and direction of any current which might exist where the machine was. A careful series of experiments with this machine showed that the ebb-tide exceeded the flood-tide through East River by 448 millions of cubic feet. Every position taken by Professor **Mitchell** on theoretical grounds was confirmed by direct experiment.



We cannot dismiss this machine without a further word, for it is another of the very many valuable inventions which have had their origin in the work of our Coast Survey. The following description, aided by reference to the accompanying illustration, will be sufficient. The vane or rudder forces the propeller to face the current, which causes the propeller to rotate. A compass needle is concealed in the body of the machine. By means of electric connections the rotations of the propeller are counted, and the direction of the compass and current is indicated at any desired place by the receiver shown below the machine. As a current meter it performs the same office in the shallower waters of our harbors and rivers that Lieutenant **Pillsbury**'s current meter, hereafter referred to, performs under the greater pressure of the deep sea. The two machines are supplements of, not substitutes for, one another. Though it is apparent that this device must prove of the utmost value in determining what course should be taken to improve any harbor, this is but a part of its sphere of usefulness.



ISOGONIC MAP OF THE UNITED STATES FOR THE YEAR 1888.

We all know how dependent the sailor is upon the compass, and that there are few places on sea or land where it tells the truth. The extent and direction of error depend partly upon where on the earth's surface the compass may be, and partly on the local attraction of the vessel itself. But whatever the error, the sailor must know its direction and amount, that by a proper allowance for it he may determine his true course. The main difficulty is the local attraction of the vessel itself, since it is inconstant, particularly on iron vessels. The charts give the amount of constant error. The actual error is determined by observations, which of course are dependent on the weather. An iron vessel may run north or south for a week, observation impossible by reason of clouds, while the error of her compass varies from day to day. But if provided with this machine, it may at any time be dropped astern 500 or 1000 feet, entirely beyond the sphere of the vessel's attraction, and where it will be affected only by the error known from the chart. It will then inform the ship-master upon his own deck just how the compass of the machine points. If he compares this reading with that of his ship's compass, the error due to the attraction of the vessel itself is at once disclosed.

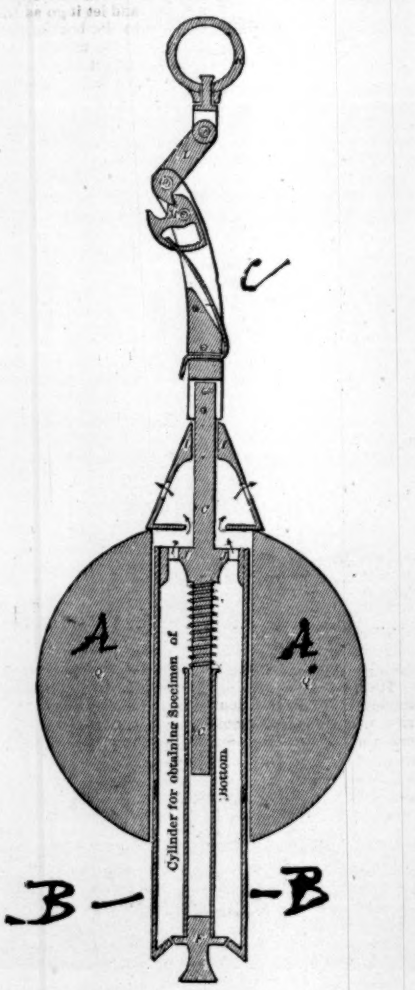
We have already alluded to the fact that the compass needle points true north in but few places on the earth's surface. Take a case in point. In 1657 the compass pointed due north in London, England. In 1760 it pointed 19½°, in a circle of 360°, west of north. In 1819 it reached its maximum westerly variation—24⅜°. This means that if, ignorant of this error, a mariner had then steered or a surveyor had run a boundary line of a piece of land north by compass, the real direction made would have been northwest by north. Since 1819 the motion of the needle has reversed in London. It is now moving east at the rate of a little over one degree in eight years.

The amount of annoyance this state of affairs has given to seamen and landsmen alike is enormous. Its discovery came as near to demoralizing **Columbus** when on his way to the New World as any one thing could to demoralizing that iron man. Until within comparatively recent times surveyors in this country seem almost habitually to have ignored this inconstant error of their compasses. After a lapse of years, when another surveyor was put upon the adjoining property, he reported to his employer that his neighbor was trespassing. It needs no evidence of statistics to prove how fertile in lawsuits this has been. The Coast Survey is and for a long time has been in almost daily receipt of letters from lawyers, surveyors, and others involved in disputed titles to real estate, asking what was the error of the compass in a given locality at a certain time; to all of whom the needed information has been given. To meet this general want, the Coast Survey has now in press a pamphlet from which can be ascertained what was the compass error in any locality in the United States at any time within one hundred or more years in the past, and for many years in the future. It is proposed to supply a copy for public use, free of expense, to every county clerk or registrar of deeds in the country. The accompanying little map shows the error of the compass in the United States for the year 1888. The somewhat unusual word "isogonic," which appears in the map, means in this connection "lines on which the compass error is the same." At all places on the line marked *O* extending in a northwesterly direction from the vicinity of Charleston, South Carolina, the compass will then point true north. At all places to the right of that line the needle will point to the west of the true north; at all places to the left, its error will be toward the east. The figures toward the ocean end of the lines show the then amount of error in degrees. Upon each of its 450 charts the Coast Survey indicates what the compass error was at date of issue in the locality mapped, and also the annual rate of change.

The line of no error is swinging slowly to the westward from a centre apparently somewhere beyond North America, in the Arctic Ocean. That these "isogonic" lines—lines of equal error—are really irregular, instead of straight, as had been supposed, is a recent and suggestive discovery of the Coast Survey.

The amount of patient labor involved in the investigation of terrestrial magnetism by the officers of the Coast Survey, of which the above is but a portion of the practical outcome, is enormous. Thousands of observations, necessarily extending over many years, have been made, collated, and compared. In this branch of physics Mr. C. A. **Schott**, the indefatigable head of the computing division of the Coast Survey, has long been recognized as one of the very first authorities of the world upon terrestrial magnetism.

Not only is our own country greatly indebted to our Coast Survey, but the outside world as well. The method of determining longitude by the electric telegraph, now in universal use, and known as the "American Method," originated therein in 1844. The determination of the exact difference in longitude between Greenwich, England, and Cambridge, Massachusetts, was long regarded as one of the most difficult of problems to solve. Upon it depended the correct location of our coasts with reference to those of the Old World. The completion of the first Atlantic telegraph cable rendered the "American method" applicable. So accurate was the work, that an error in the supposed longitude of Paris, France, with reference to Greenwich, was incidentally discovered.

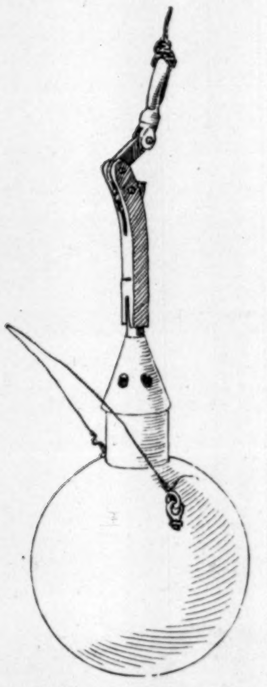


SECTION OF SIGSBEE'S DEEP-SEA SOUNDING ROD.

The whole practice of "geodesy"—measurement of the surface of the earth—has in many respects received a greater development in our Coast Survey than anywhere else, and through it an impulse has been given to similar work abroad. We have already given examples of the perfection of its work. A few years ago the use of instruments for measuring angles was thought to be impossible from high wooden towers. In the governmental survey of India, great brick towers were built for the purpose, at enormous expense. Our Coast Survey has revolutionized all this by an ingenious construction of cheap wooden towers, from which observations of the highest order of excellence are obtained.

In the space allotted to this paper but a fractional part of the work of the Coast Survey can be understandingly alluded to. A little must be taken, and much, though of equal or even greater practical importance, must be left unnoticed. Selection is indispensable. We pledged ourselves at the outset to avoid the intricacies and technicalities of science, and this has been the principle which has guided that selection. It would be unjust to the Coast Survey to infer that the relative importance of its functions is in any manner to be measured by their inclusion or omission, or by the amount of space assigned them herein.

Probably no man ever spent much time on any body of water, the bottom of which was invisible, without wondering how deep it really was. Perhaps as a manifestation of this phase of human nature—at all events, as a fact—efforts to ascertain the depth of the deep sea have been long-continued and persistent. A heavy lead and plenty of line seemed to the pioneers in this work all that was required. But it was found that a rope of considerable strength and consequent thickness was needed to haul up the sinker from any depth. The roughness of the surface of such a rope, together with its size, caused excessive friction in its passage through the water. Also the water counterbalanced all but a fourth part of the weight of the rope, leaving but this fraction and the weight of the lead to sink it. But the weight of the lead remained constant, while the resistance from friction increased as the length of rope below the surface increased. A point was therefore at last reached, and that at no great depth, where this frictional resistance counterbalanced the sinking power of the lead. Thereafter the rope sank only by its own residual weight, which was a fourth part of its weight in air, as previously stated. As a consequence the drag on the rope, which was all the sounder had to go by, continued unchanged even after the lead had reached the bottom, and he could continue paying out line indefinitely, until either his supply or his patience became exhausted. Before long it became evident that nothing of value, unless possibly a lesson of patience under disappointment, could result from such methods.



SIGSBEE'S DEEP-SEA SOUNDING ROD—SHOT DETACHED.

Then some of our naval officers conceived a plan charming in its simplicity. Wind a known quantity of small string on a reel, attach to it an old cannon-ball, drop it overboard, and let it go as fast as it chose to the bottom. Then cut the twine, measure what was left, deduct that from what was on the reel in the first place, and lo! the problem was solved. It was supposed a thread even would suffice, since the weight was to be allowed to sink at its own sweet will. But such was found not to be the case. The drag of the twine through the water was found to impose considerable strain upon it, and cord capable of sustaining sixty pounds came to be used. It was in this manner that soundings for the second Atlantic cable were obtained.

Still, though employing this method in substance, Lieutenant Berryman, in the United States brig *Dolphin*, got no bottom in the Atlantic at 6500 fathoms, or 39,000 feet; Captain Denham, in H.M.S *Herald*, reported bottom in the South Atlantic at 7666 fathoms—46,000 feet; and Lieutenant Parker, in the United States frigate *Congress*, near the same place, ran out 8333 fathoms—50,000 feet—without finding bottom. All these measurements greatly exceed the depth of any part of the Atlantic.

But scientific men like facts—demonstrated facts. What assurance was there that bottom had been reached unless a sample of the bottom was brought up? At this stage of the question, in 1854 John M. Brooke, then a passed midshipman of our navy, and attached to the Naval Observatory, produced an invention which marked an era in deep-sea sounding. It has been improved in detail since, but its mechanical principle is to-day the principle of every successful deep-sea "sounding rod."

The best sounding rod (as these devices are termed) of to-day is doubtless the Brooke device as modified by Commander Charles H. Sigsbee, then of the Coast Survey, and commanding its steamer the *Blake*. The defects of the original Brooke sounding rod were that occasionally the shot failed to detach, involving the loss of line, sounding rod, and its appurtenances, and that the sample of bottom brought up, if any, was undesirably small.

Commander Sigsbee's modification may be sufficiently described as follows: Of the accompanying cuts, one shows it as though cut in half lengthwise; the other is an ordinary view when the shot has been detached, and the sounding rod is in process of withdrawal. The sinker is the 8-inch cannon-shot, *A*, weighing sixty pounds. A hole runs through it large enough readily to admit the sounding rod, *B*. Upon the shot are cast two ears, like the ears on a pail, to which a wire bail, just like a pail handle, is attached. The sounding-line is fastened to the ring shown near the top of the cuts. The sounding-rod *B* is a brass tube about one-eighth of an inch thick, quite sharp on the lower edge. It operates thus: The shot is placed upon the sounding-rod, and its wire bail is hung over the hook *C*. As long as the weight of the shot is borne by the sounding-line, the hook *C* will remain as shown and sustain the shot. But the moment that strain is relieved by the shot striking the bottom, the hook *C* doubles under and releases the wire handle of the shot. At the same time the weight of the shot buries the sharp lower edge of the sounding-rod in the bottom. This forces up a valve, and a portion of the bottom enters. At the first movement toward reeling in the line the shot slips off the sounding-rod and remains behind, and the valve at the bottom of the sounding-rod closes, imprisoning a sample of the bottom. This device has been tried many hundreds of times in great depths, and it has rarely failed to detach the shot as well as bring up a liberal sample of the bottom.

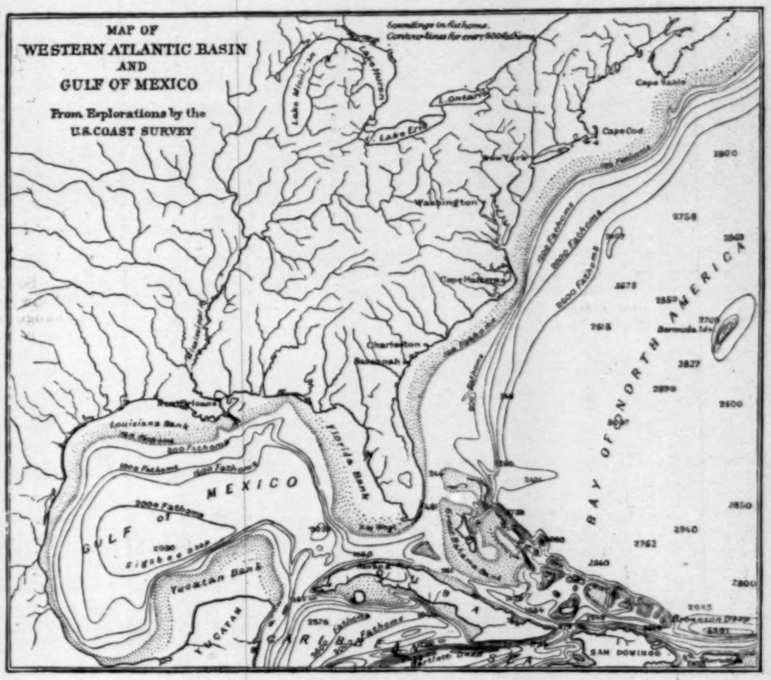
From the great pressure to which the floor of the ocean is subject—over three tons to the square inch at 3000 fathoms—it might be inferred that the bottom would be very hard. Such is not the case. The great depths of the Atlantic rest uniformly upon a soft ooze very smooth and unctuous to the touch, and not unlike powdered rotten-stone in color. One gentleman of wide experience says that it always makes him think of clotted cream when he handles it.

The use of a sounding-rod of the Brooke type brought about a return from twine to rope sounding-lines. But as the weight was not to be hauled up, smaller ropes and much heavier weights were practicable. The latest and most trustworthy deep-sea soundings with rope were made with cords about one-quarter and one-fifth of an inch in diameter, the sinker weighing 100 pounds for every 1000 fathoms of anticipated depth. Thus the frictional resistance encountered by the line in its passage through the water was reduced, while the efficient action of the sinker was greatly increased.

The smooth surface, small diameter, and great comparative strength of wire naturally suggested its use for sounding-lines in place of rope. Though it had been tried from time to time before, to Sir William Thompson belongs the credit of bringing it into general use, by inventing a machine in 1872 which in great measure overcame the difficulties that had theretofore attended its use. The wire which he chose for the purpose, and which is still used, was hard steel piano wire of the character and diameter commonly used for the higher notes of pianos. This wire is less than $\frac{3}{100}$ of an inch in diameter, or about the size of an ordinary pin $1\frac{1}{4}$ inches long, and will lift a dead weight of from 220 to 240 pounds.

But the difficulties attending the use of wire are many. It can only be transported from the wire-mill in coils. He who has ever uncoiled springy wire knows its proneness to reassume its original form. If in sounding, the strain is for a moment relaxed, the slackened wire coils at once, and upon a reimposition of the strain a kink immediately results. At that kink the strength of the wire is gone. A child could break it with its bare hands. This is especially likely to happen at the moment the sinker strikes bottom, particularly if the vessel happens at the time to roll in that direction. Should the kinking take place above the surface of the water, as it may do, the loss of all the wire below the kink, and everything attached to it, results.

Again, in reeling in, the wire must be guided to the reel in even layers, just as thread is wound upon a spool; for if ridges are allowed to form, during the next subsequent operation of paying out the wire will slip and loosen some of the turns, when a kink is sure to result.



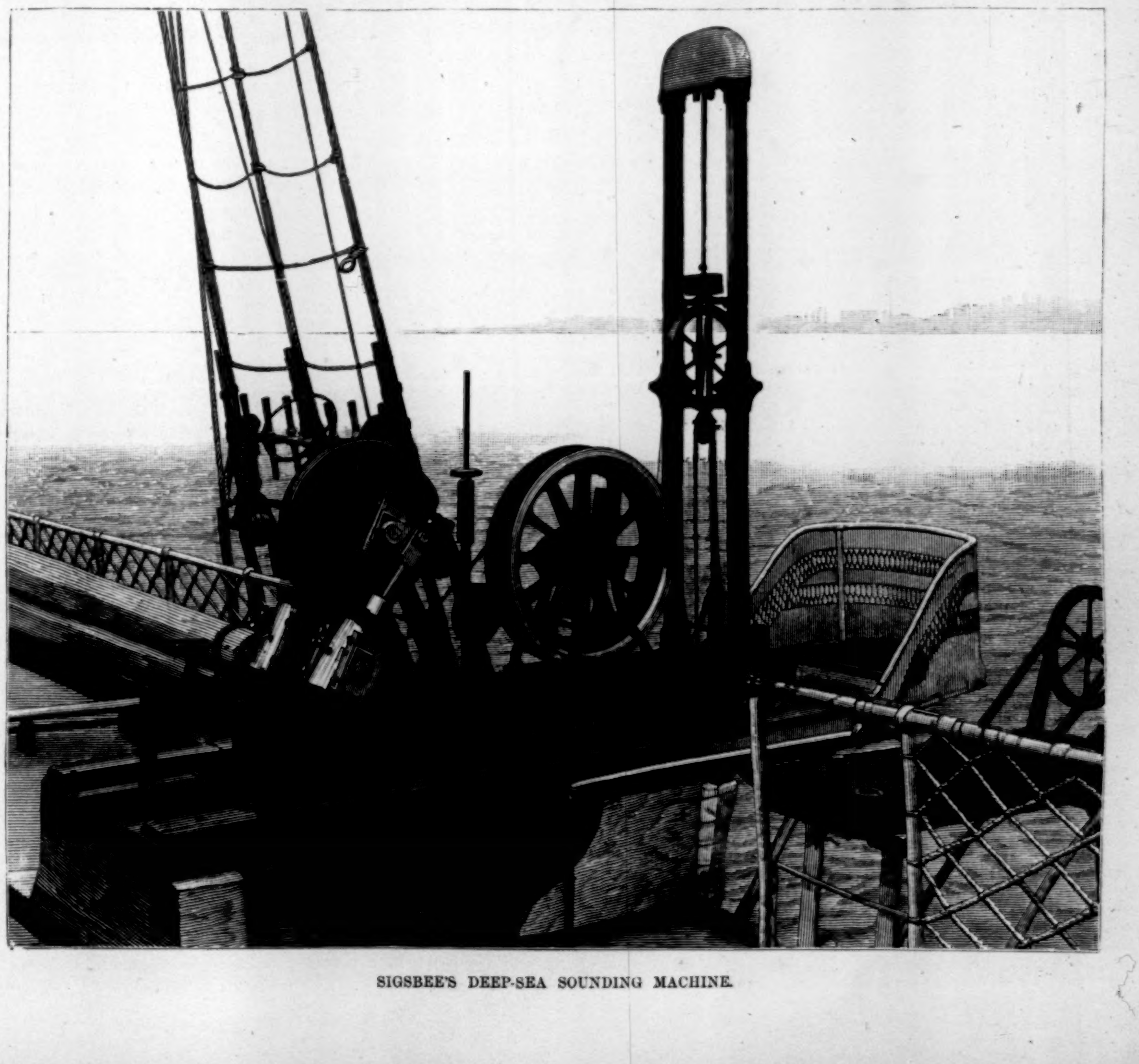
The Thompson machine was practically defective in that it left the avoidance of these mishaps to the individual skill of the operator. If he had and exercised the required skill and care, the machine worked all right; if he did not, it failed altogether.

Lieutenant-Commander Sigsbee, then of the Coast Survey steamer *Blake*, remodelled the Thompson sounding-machine until it assumed the form shown in the illustration, which is from a photograph recently taken of the *Blake's* machine.

The two pillars seen on the outboard end of the machine contain each a spiral spring. A crossbar works up and down between these pillars in such a way that if pulled downward it compresses the springs, while the springs lift it upward the moment the strain is relaxed. To the middle of this crossbar is hung the pulley over which the sounding-wire passes on its way into the water. Its operation is obvious. The strain on the sounding-wire is transmitted to this pulley, and thence to the crossbar, which rises or falls with every variation of the pull upon it.

The reel upon which the wire is wound is the outer wheel in the illustration, and the depth sounded is measured by a mechanical counter which records the number of times the reel has revolved during the paying out of the wire.

Two small oscillating engines, connected with the sounding-reel by a small belt, reel in the wire after the sounding is complete.



SIGSBEE'S DEEP-SEA SOUNDING MACHINE.